



ORTHO NEURO TECHNOLOGIES

Dynadjust Training Manual



Table of Contents

I.	History and Mission_____	1
II.	Preparation and Testing (P.A.T.) Program_____	4
III.	Dynadjust Tutorial & Navigation_____	6
IV.	Users Tips_____	12
V.	Student Scenario_____	16
VI.	Appliance _____	20
VII.	Plyometrics_____	23
VIII.	Introduction to the Dynadjust Rudimentary Exercise Programs (D.R.E.P.) & Ancillary Conditioning Exercises (A.C.E.) _	27
	a. D.R.E.P. Chapter 1 _____	31
	b. D.R.E.P. Chapter 2 _____	33
	c. D.R.E.P. Chapter 3 _____	37
	d. D.R.E.P. Chapter 4 _____	39
	e. D.R.E.P. Chapter 5 _____	41
	f. D.R.E.P. Chapter 6 _____	43
	g. D.R.E.P. Suggestions _____	45
IX.	Ancillary Conditioning Exercises (A.C.E.) _____	46
X.	Introduction to Catalog of Exercise Assignments _____	48
	a. Catalog Chapter 1 _____	53

b.	Catalog Chapter 2	58
c.	Catalog Chapter 3	66
d.	Catalog Chapter 4	71
XI.	12 Standard Exercises	76
XII.	Suggested Goal Metrics for Beginning Exercises	77
XIII.	Research and Supporting Links	84
XIV.	Glossary	86

The Dynadjust History & Mission



Play History & Mission Video

The history of spinal manipulation in all of its many incarnations goes back perhaps thousands of years. Happily, for the health care consumer, over the last few decades spinal manipulation therapy has been very thoroughly researched by highly qualified scientists from across the spectrum of the professions. It is safe to say that the consensus is that spinal manipulation therapy when performed by qualified experts is an exceptionally useful and safe modality.



Students and practitioners can be taught to perform their orthopedic and neurological tests utilize imaging when necessary and with time and experience develop excellent instincts for making the determination of where, when and how the application of spinal manipulation therapy is indicated. However, spinal manipulation therapy, especially HVLA techniques, are among the most challenging skills to master. Whether the goal is the reduction of a fixation lesion of a synovial joint or any other problem where the modality is indicated, spinal manipulation therapy requires a very high level of competence and is not without risk both in training and application.

There have been many attempts by scientists from various disciplines to create some type of simulator device to address this problem. The difficulty is that it is impossible to provide simulators for each different body type or treatment scenario, even if this was possible its simply not feasible for each individual student to have adequate lab time and technical assistance necessary for them to develop their required skills. In the early development of the Dynadjust system it was quickly recognized that the path of the anatomical analog was not a feasible solution.



Published research on exactly what comprises the essential elements of safe and effective HVLA procedures have emerged. Many studies, including published research that is specific to the Dynadjust Instrument, have clearly demonstrated that training on biofeedback machines does translate into lasting increases in the specific skills required in the treatment of human beings. In

approximately 2007, computer gaming systems such as the Wii were introduced. These toys utilize miniaturized gyro and accelerometer technology for measuring motion and force. The advent of these new powerful electronic components was the impetus for further development of the Dynadjust spinal manipulation training system. These components have made it possible for the Dynadjust instrument to accurately measure every aspect of the dynamics of the manipulative thrust and to do so safely and effectively, in any treatment posture. This virtually eliminates the potential for student on student in class as well as injury to the students resulting from old fashion training exercises. Another significant advantage to utilizing the new technology is that it is relatively inexpensive. Thanks to the success of the computer toys these components are readily available and quite versatile in their compatibility with other necessary electronic components. These attributes have made it possible for every student to have access to their own Dynadjust training equipment.

This allows students to train on their own time, at their own pace, and from any location. With the infusion of substantial capital, intense design and engineering effort and the support of many professionals in the field and educators, OrthoNeuro was ready to introduce the completed Dynadjust systems in the spring of 2012. The instrument allows the user to closely replicate appropriate treatment postures so that the exercises isolate specific anatomy of the user for training. The instrument utilizes four basic principles of effective exercise: Dynamic resistance training, isometric training, Plyometric training, and biofeedback training.



For the first time in history of spinal manipulation training, we now have an affordable and comprehensive system, which combines these proven exercise principles for the rapid development and enhancement of not only the body but the central nervous system of the trainee. The Dynadjust system allows the trainee to quickly acquire the ability to modulate the force of their procedures with great precision and control over the depth and direction of their thrust in any treatment posture, even with complex combined motion techniques. It has been reported in the literature that on average the physical skill of field practitioners using HVLA techniques tends to peak at approximately 5 years in to practice, and that their ability to modulate the force of HVLA thrust varies dramatically.

The goal of the Dynadjust systems is to close that gap and help standardize skill levels at a much higher level. By providing the opportunity to produce thousands of HVLA thrusts over the course of several semesters with objective analysis and feedback for each thrust, students will develop the physical attributes and skills needed to master the art far sooner

and in a much safer and more effective manner. By incorporating the Dynadjust system into the curricula of our colleges we believe that the physical acumen of our students in force modulation, coordination, accuracy and control for the full spectrum of HVLA procedures will be radically improved in just 2 to 3 semesters of study. The program is designed to be easily and economically incorporated into any existing palpation or introductory to manipulation course. While this enhancement to the curriculum requires almost no change to the existing program, it will immeasurably enhance the ability of the instructors to track the progress of individual students, identify areas of weakness in skill and provide custom regimens to effectively address and correct any deficit in performance.

The Dynadjust Preparation and Testing (PAT) Subscription Program



The Dynadjust Preparation and Testing Subscription Program (PAT) is designed to allow professors, institutions, and testing bodies to evaluate and test the HVLA psychomotor skills of students or practitioners in the field.

This program is especially useful for evaluating candidates for promotion within a scholastic program, such as students whom are about to begin the clinical portion of their education, regardless of whether or not the student has previously trained on the Dynadjust System as part of their school's standard curriculum. Therefore, a school that has recently implemented the Dynadjust Systems for their underclassmen can utilize the PAT program for the upperclassmen as well.

The Dynadjust Spinal Manipulation Training System allows students to train and test for the most critical of all physical skills involved in safe and effective manual manipulation, ***their ability to accurately modulate the forces that they apply, with a high degree of precision in depth and direction, in any treatment posture***. The instrument measures and reports objective metrics on every aspect of the actual dynamics of the HVLA thrust. It provides **comprehensive empirical analysis** of skill, identifies weaknesses in technique, and custom training regimens for the development and enhancement of those skills.

Dynadjust PAT subscriptions are available as a part of the Dynadjust System Scholastic Implementation Program, and even for schools where the Dynadjust System is not yet a part of the standard curriculum.

The PAT subscriptions are easily administered. When a group of students is ready to move up to their clinic experience:



- 1) The institution orders the appropriate number of Dynadjust kits and subscriptions to the OrthoNeuro Service Center.
- 2) The administrating professor has the choice of utilizing the standard program, which is available on-line from ONT, or they can design their own program.
- 3) The students are introduced to the instrument via the on-line ONT PAT Subscription Introduction Videos.
- 4) The instructor describes the set of manipulation scenarios, and the “goal metrics” that they consider are most appropriate for this group of students. Suggested goal metrics can be found on the ONT PAT Subscription section of the website.
- 5) After the instrument familiarization work is completed by the student, they have 30 days to work with the Dynadjust Instrument and ONT Service Center subscription to practice for the test at home, and at their own pace. (In the interim, the administrating professor has the option of using the system for the students to perform and up-load exercises that will become the “base-line”, against which the results of their training will be compared.
- 6) After the 30-day training regimen, the students are tested within a controlled environment on campus. The results of this testing will objectively identify any weak points which may exist in individual student performance. Supplemental Dynadjust exercise regimens, for students who need them, can be implemented to remedy any deficiencies in individual performance.



This revolutionary and comprehensive evaluation protocol provides a permanent record of empirical analytical data, and thus instills confidence for the student and professor that the student possesses the level of skill needed for advancement to the next phase of their educational experience. The individual student performance data can be reviewed at any time, and used to compare new performance levels, such as for an exit examination for a clinical rotation, or other milestone in the educational experience.

The Dynadjust Tutorial



Play Tutorial Video

The following is a step-by-step tutorial of the various screens you will encounter while using the Dynadjust. This section is divided into two parts:

Part I - Device Navigation, Part II – Exercising.

Part I - Device Navigation

1. Start-Up Screen

- Device name, Software Version, Serial Number, Subscription Expiration Date



2. Welcome Screen

- Choose “New Parameters” with button #1.

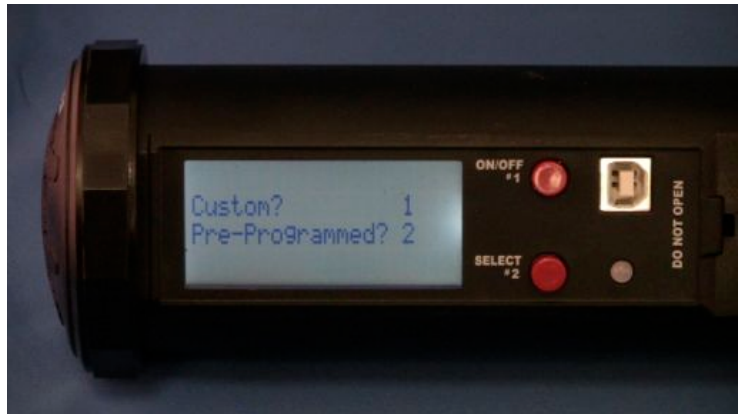


- If the device has exercises stored, you will have the option to start a new parameter (button #1) or to use the last parameter (button #2).



3. Custom/Pre-Programmed

- The “Custom” feature is currently reserved for research. Please select “Pre-Programmed,” (button #2) for one of the twelve parameters settings.



4. Parameter Select

- Select one of the twelve parameters. Cycle through the parameters with button #1, select the parameter with button #2.



5. Spring Select

- Install the appropriate spring in the Dynadjust (Yellow, Red or Black) Select the corresponding spring with button #1; continue with button #2. (The Yellow spring is the lightest, the Red spring is 20% stiffer than the Yellow spring, and the Black spring is 20% stiffer than the Red spring).



6. Timing

- Choose between Standard or Recoil timing.
 - *Standard timing*: time is measured from the moment the user begins to thrust until they cross the depth of thrust distance.



- *Recoil timing*: entire thrust time recorded; from beginning of thrust, to pre-set depth, and back.



7. Queue to Thrust Options (Q2T)

- Select between one of three cue to thrust options
 - Audio*: an audible tone will signal queue to thrust depth.



- Tactile*: a vibration sensation will signal the queue to thrust depth.



- Visual*: a green light (next to button #2) will signal the queue to thrust depth.



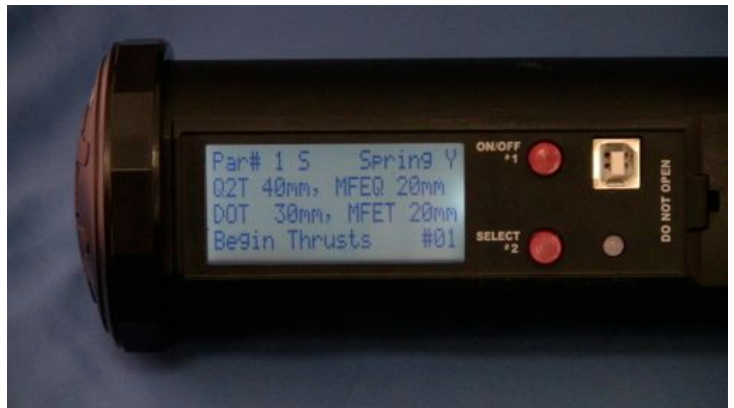
8. Exercise Review

- Review of the selected parameter and the thrusts to be performed; 6 warm up & 12 recorded.



9. Parameter Review

- Line 1: Parameter #, Timing option (S= Standard, R= Recoil), Spring color.
- Line 2: Queue to Thrust depth and Margin for Error
- Line 3: Depth of Thrust and Margin for Error
- Line 4: Ready to begin.



Part II – Exercising

10. A successful thrust is one that falls inside the parameters.

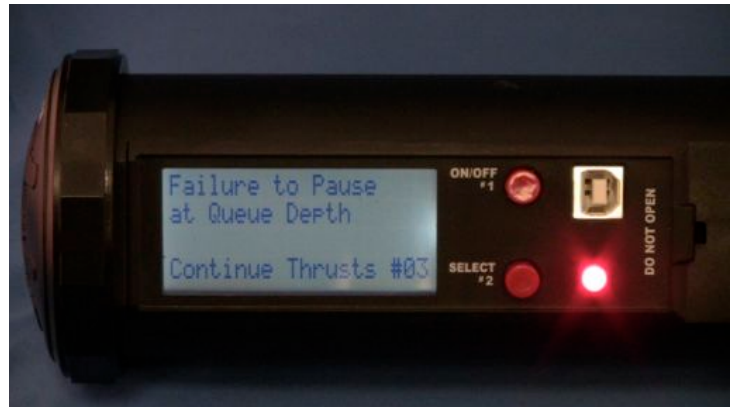
- Line 1:
 - Dwell= the time from when the user crosses the Depth of Thrust distance until they stop and reverse direction.
- Line 2:
 - T= Time of thrust; either standard or recoil.
 - R= reaction time; the time spent holding at the queue to thrust depth.
 - F= Force, displayed in Newton / acceleration units; this calculation is based on the spring selection and speed of the thrust ($\text{Force} = \text{Mass} \times \text{Acceleration}$) See the [Math Calculations Video](#) for details.



- Line 3:
 - LOD= Line of Drive (deviation from straight) reported in percentages.
 - Rot= Rotation (around the longitudinal axis of the instrument) reported in degrees.

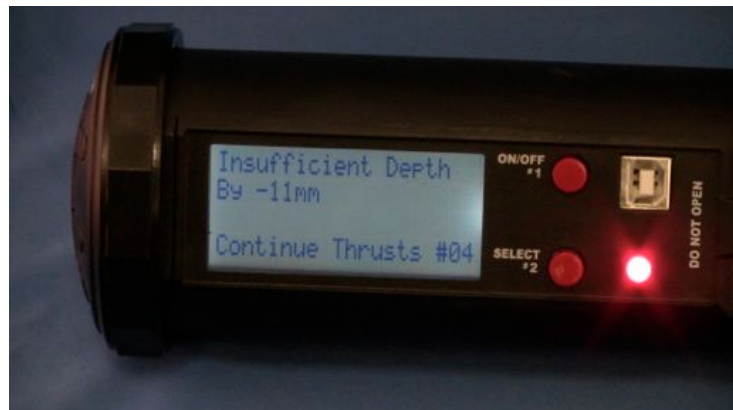
11. Failure to Pause at Queue Depth

- This screen reports a failure to pause at the Queue to thrust Depth.



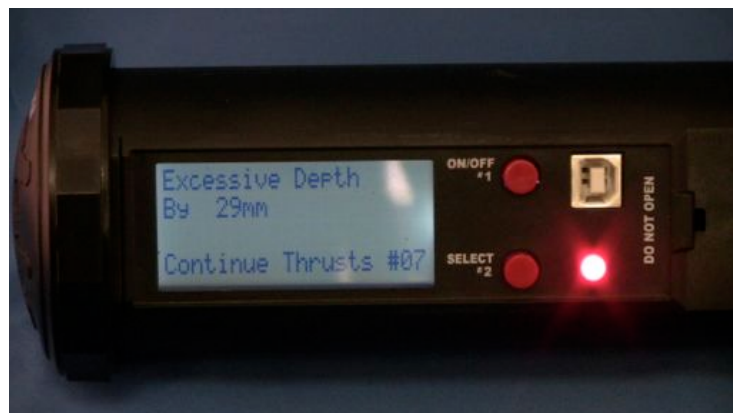
12. Insufficient Depth

- This screen reports a thrust that was too shallow in depth and did not reach the Depth of Thrust Parameters.



13. Excessive Depth

- This screen reports a thrust that was too deep in depth and went past the Depth of Thrust Parameters.



14. Loss of Pre-Manipulative Tension

- This screen reports a loss of Pre-Manipulative tension at the Queue to Thrust depth.



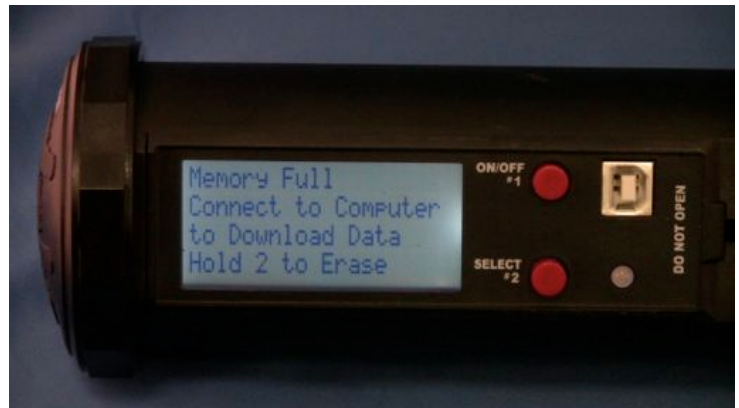
15. Session Complete

- After finishing a complete set, you can now connect the Dynadjust to a computer to upload exercise data via Sync software, or continue exercising with the device by pressing button #2 (this will take you back to the welcome screen).



16. Memory Full

- The Dynadjust can store up to 16 sets of exercise data. Upon reaching this limit you have two options:
 - Connect to the computer to upload the data
 - Hold both buttons #1 & #2 for 12 seconds to erase the data.



Dynadjust User's Tips

Legend of screen information:

- Par. Set "X"** = Parameter Setting (1-12)
- Spring "X"** = Y for Yellow (lightest resistance)
R for Red (medium resistance, 20% stronger than the yellow spring)
B for Black (heaviest resistance, 20% stronger than the red spring)
- Q2T** = Queue to thrust (at designated tissue pull setting)
- MFEQ** = Margin for Error of Queue to Thrust
- DOT** = Depth of Thrust (from queue to thrust to designated depth.
- MFET** = Margin for Error for Depth of Thrust
- Standard** = Thrust is measured from Queue to Thrust to designated depth.
- Recoil** = Thrust is measured from Queue to Thrust to designated depth, and back to neutral position.
- Dwell** = The time it takes to stop at the bottom of the thrust and reverse direction (especially useful for measuring recoil style acumen).
- Audio** = Audio tones indicate Queue to Thrust, and successful vs. un-successful thrusts.
- Tactile** = Vibration sensation at Queue to Thrust
- Visual** = Green light at Queue to Thrust, and green or red to indicate successful vs. un-successful thrust.
- Successful Thrust** = Thrust was performed within the preset parameters selected.
- T** = Time (speed) of the thrust (In "Standard Mode", this is the time from when the thrust is initiated from the pre-tension, to the bottom of the thrust. In "Recoil Mode, the timing includes the "Dwell time and the time it takes to return to the neutral position.)
- LOD** = Line of Drive in percentage of deviation from perfectly straight line of drive (45 degrees would be 100% deviation.
- Deg Rot** = Degrees of rotation around longitudinal axis.
- F** = Force generated in "Newton / Speed" units. (not actual newtons of force). Force goes up exponentially, as a factor of the spring constant, and the velocity of the thrust. $F = K \times V^2 \times 30$, where kx is the spring constant. These calculations are used for ease of reporting comparative speed / force metrics.

User's Tips:

- 1) Form is everything. Without the proper form, with regard to your posture and positioning of your own body and the Dynadjust instrument, you will not reap the maximum benefits of the Dynadjust training regimens. Your professor will demonstrate the proper form for each exercise, and explain the importance of the subtleties of doctor / patient simulation postures. Maintaining the proper form will ensure that the correct muscle groups are being developed and enhanced with the exercises. It is better to do a few sets of exercises with the proper form, than to do many sets with sloppy form. Your professor will explain the desired effects and goals of training. If you perform the exercises as prescribed, the benefits of this system will begin to show very quickly, and you will soon possess the physical attributes of a master.
- 2) The Dynadjust instrument has a long-life rechargeable battery. It is more than sufficient for nearly any training session, but should be re-charged between sessions to ensure accurate data reporting, and to prevent loss of data.
- 3) The Dynadjust instrument is a very sophisticated electronic device. If the instrument is on, and a partial, or random thrust is performed, it could confuse the internal computer, resulting in an error message or a “freeze”. This usually causes the instrument to emit a continuous tone or vibration, which indicates that the unit needs to be re-set. To re-set the unit, simply depress the unit fully, one time, from neutral to full depression. This will allow the instrument to re-set. Usually no data will be lost with this kind of re-set of the instrument. If the instrument does not respond to this procedure, press and hold button #1 until the “Welcome Screen” appears. All stored data should be retained, and you can start a new set. If the unit still does not respond, you may need to clear the existing data by pressing and holding both buttons for 12 seconds, or until the screen goes black. When the screen goes black, release the buttons, and the unit will automatically return to the “Welcome Screen”. This “re-boot” will erase any stored data.
- 4) The Dynadjust Instrument holds 16 sets of 18 thrusts. The instrument will not record partial sets. You must complete any set (all 18 thrusts) that you intend to up-load to the Service Center. You may turn the unit off at any point, even if the instrument is not full, by depressing and holding button #1 until the Welcome Screen appears. At the welcome screen, simply press and hold button #1 until the screen goes black. The first six thrusts of any set are for “warm-up”, to help you find the “groove” of the parameter setting chosen for the exercise, and they are not stored. The last 12 thrusts of any set of thrusts are stored for up-load to the Service Center. If you perform exercises that you do not intend to up-load to the Service Center, you can use the “re-boot” function to erase all stored sets. You do not need to “fill” the instrument with all 16 sets before you re-boot.

- 5) You need not fill the instrument with all 16 sets before you up-load your exercises. You can up-load any stored exercises at any time. The Welcome Screen shows how many sets are stored. When you up-load sets to the service center, it is important to use the “Notes” window to describe your exercise. If your exercise is one that has been chosen from the Catalog of Exercises, or if it is one that has been assigned by your professor, you may label it as such. Be sure to note any variations that you employ, and to indicate if it was done with the dominant or non-dominant hand, where applicable.
- 6) When exercising with the instrument, it is important to take your time, and not to rush through the thrusts. Holding “pre-tension” for three to five seconds is an important component of the isometric training aspect of Dynadjust exercises. Hold the pre-tension, just as if you were working on an actual patient. Simulate waiting for your patient to relax, as you consider the angle, depth, and speed of the thrust that you intend to impart. Be sure to consider your form with every thrust. If you find that you are losing your form, you may be experiencing fatigue, and should stop and rest.
- 7) While holding pre-tension, concentrate on flexing the muscles involved with the thrust you are about to perform. This is an important component of the plyometric aspect of the training. (See Plyometric portion of this guide.)
- 8) When starting a new exercise for the first time, emphasis should first be placed on performing the thrusts within the parameter settings chosen. Start with parameter settings with liberal margins for error, and gradually move up to the more challenging parameter settings. Once good depth control is achieved, move up to the stiffer springs and work to maintain depth control with the heavier springs. As you increase the spring tension, you will find that control over your line of drive will be more difficult. An exception to this rule is with some side-posture or body-drop exercises, in which it is sometimes easier to perform the exercise with the stiffer springs. For these exercises, the user should start with the stiffer springs and work toward being able to perform as well with the lighter springs.
- 9) Be sure to master depth and directional control **before** you begin practicing for speed and force increases. **Mastering any particular exercise means being able to maintain your form, and to control the depth and direction of the thrust with any level of resistance, and being able to modulate the force / speed of your thrusts at will.** (See the suggested goal metrics to be achieved in the [Catalog of Exercises Chapter](#)). The user should strive to master any particular exercise before moving on to the next doctor / patient positioning technique, and before utilizing the exercise enhancement techniques, such as the resistance tubing or supplemental appliances, etc.
- 10) During the course of your exercises, if you find that you experience soreness of joints or soft tissue, simply take appropriate action in terms of first-aid, and back off on the frequency and

intensity of your training. **One of the most beneficial aspects of the Dynadjust Training System is that it is customizable for any level of experience and physical development.** Of course it is normal for there to be some level of muscle soreness in the groups involved with the Dynadjust exercises. Use your own judgment, based on past experience with other new physical activities, to train for your goals, at your own pace, and to avoid injury from overtraining.

Student Scenario



Play Student Scenario Video

This scenario was constructed to demonstrate the abilities of the Dynadjust Instrument and the Service Center. As you will see, these concepts can be extrapolated for any level of training for even the highest levels of skill development. Remember, as the student performs the assigned exercises, the instrument reports the metrics of each thrust. The student can use this real-time feedback to help them refine their technique as they work. The assigned sets are then up-loaded to the Service Center and the professor can evaluate the student on every aspect of their performance at a glance. He can then prescribe regimens that are specific to remedying whatever difficulties the particular student encounters with their training. This system provides a permanent private record of achievement for the student, with which to compare future accomplishments and to be used to determine when the student is ready to move forward and progress through the program.

This particular example is a first-term student whom has been assigned a simple P to A exercise for a home-study session. This relatively simple assignment was designed to help establish a baseline for skill development. In this case, the parameter setting for the Dynadjust instrument was #3. The student was asked to perform two sets of thrusts with each of the three springs, and to up-load the data collected. The student is asked to concentrate on vector and depth control (over speed and force) for this exercise.



Assignment Description:

Dynadjust Parameter Setting: #3

Doctor / Patient Posture: Standing in Modified Fencer Stance (see graphics and review video assignment #1) Maintain your lordotic lumbar curve during the exercise.

Thrust Vector: P to A, with the Dynadjust instrument tangential to the table, and the top of the instrument at approximately naval level.

Contact: Bilateral Thenar Eminence with fingers pointing toward the head of the “patient.”

Primary Student Muscle Involvement: Triceps; bilaterally.

Thrust Focus: Straight line of drive within the parameters of Dynadjust Setting #3.

Notes: Please perform two sets of thrusts with each of the three springs, yellow to red to black. Rest for five minutes between sets. Concentrate on isometric flexing of the triceps muscles during the pre-tension phase. Hold pre-tension for at least 3 seconds. Up-load exercise data (a total of six sets) to your ONT account for evaluation.

Graph #1

As you see from *Graph #1* the student has difficulty holding the pre-manipulative tension prior to the thrust. Even though the student was asked to hold the tension for at least three seconds, the student is releasing the tension just prior to the thrust (essentially, bouncing off the patient). *This is one of the most common problems that are seen with beginners, and the problem gets worse as the Dynadjust spring tension is increased with the stiffer springs.* Even though this particular Dynadjust parameter setting incorporates relatively liberal margins for error, the student demonstrates very little control over the depth of the thrust and continues to waver from a straight line of drive as the spring tension is increased and as he progresses through the assignment.



Evaluation and Recommendations: In this most common of posture and thrusting techniques, the student demonstrates fundamental weakness and lack of control over the vector of the thrust. This is confirmed with the increasingly random scores with higher spring settings. This finding could be confirmed by asking the student to perform the same exercises, but reversing or alternating the order of the spring tension settings (black to red to yellow). The simple prescription for improvement would be PRACTICE and strength training of the triceps muscles using the exercise tubing and accessories provided in the Dynadjust Kit. A practical prescription for this student would be to practice this technique without trying for increased speed until the control and strength issues are

resolved, and the student can perform the exercise within parameters with increased vector control. Expectation is for rapid improvement with practice and strength training. Moving forward, the instructor will introduce more complex postures and more challenging Dynadjust settings and margins for error.

Areas of Consideration

- 1) If you observe that the student is losing “tissue pull” prior to the thrust, it is likely that he is not holding the tissue pull for the recommended 3 to 5 seconds, prior to the thrust (This is easily checked by reviewing the data uploaded by the student). A preponderance of thrusts in which the tissue pull is lost prior to the thrust would indicate that the student is either using a resistance setting that is too high, or they are rushing through the exercise. It is important to remind students that the Dynadjust instrument is a training device versus a simulator. The tissue pull phase of the thrust is designed to provide beneficial isometric exercise of the specific muscle groups involved with particular maneuvers. **The ultimate goal of the exercise is for the student to develop the strength and coordination needed for a vast range of patient body types in any doctor / patient positioning.** Remind the student that in a real-life scenario, the doctor may need to hold the tissue pull in pre-manipulative tension for some time, as the wait for the patient to relax for the thrust.
- 2) If the student is consistently failing to thrust within the designated parameter settings, with regard to depth of thrust, this would indicate that the student has not yet developed sufficient control over their thrusts. To address this issue, you might consider using a more “gross motion parameter setting” with higher margins for error, and advise the student to endeavor to gain depth control before he begins increasing this speed / force. The student would use the new setting until they become more consistent with their depth control, then move back to the more challenging parameter settings, and gradually work up through the resistance settings until they refine their command over depth control.
- 3) If the student has trouble with “line of drive” control, it is usually a strength issue. A good prescription for this type of deficiency is to ask the student to brace the Dynadjust either with one end secured against a surface, or by using the appliances to hold the device steady in position (depending on the doctor / patient position being used).
- 4) It is generally best for students to start building their strength and coordination using the lighter springs in the beginning, and working through the stiffer springs as their skill improves. The exception to this rule is side-posture or body-drop maneuvers. In most cases, it is actually easier to

perform the maneuvers with the stiffer springs, as they lend some support for the set-up. For most side-posture work, it is recommended that the students start with the stiffest spring, and move through the lighter resistance levels as their strength and coordination improves.

Key Words for Cross-Training: Modified Fencer Stance, lordotic, lumbar, thenar eminence, triceps

The Dynadjust Appliance

OrthoNeuro Technologies has introduced a new appliance designed to be used with the Dynadjust Instrument to further enhance the functionality and utility of the Dynadjust System as a whole.

This new appliance is the result of some very important feedback, which we have received from both students and professors at colleges where the technology is presently implemented, or under investigation, and we are very appreciative of their advice and help in the basic design.



[Play Appliance Video](#)

The appliance consists of four components.

1. Base plate
2. Tension ring
3. Length of 2" nylon webbing
4. Length of exercise tubing.

These components allow for much more accurate juxtaposition of the hands of the user in a variety of HVLA manipulation postures.



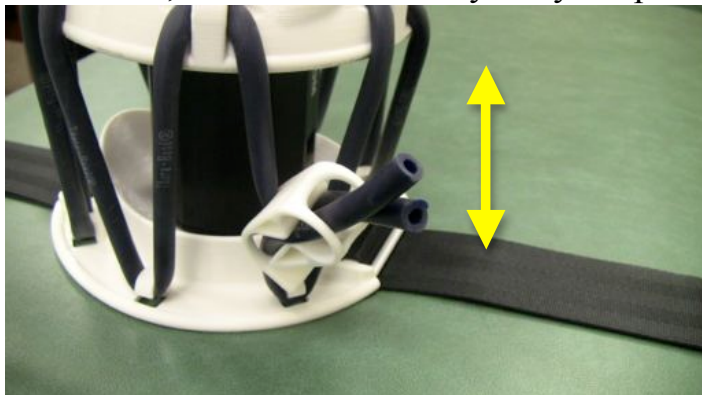
The tension ring is used to allow the hands of the user to be positioned closer together for a more realistic simulation of many cervical spinal procedures. It is especially useful in early training for students who have yet to develop sufficient strength in their hands, which is needed to grip the instrument as if holding the weight of the head of a patient with the “indifferent” hand. The tension knob



can be gradually loosened as strength develops, and very quickly the student will find that he or she no longer needs the additional help for delivering precise cervical procedures. In the cervical spinal simulations the appliance can be attached to the Dynadjust unit in two different ways depending on the desired hand placement.



The tension ring can be combined with the exercise tubing and the base-plate in a wide variety of variations depending on the goal of the exercise being performed. It is then snugly strapped to a table or other suitable surface with the nylon webbing. This allows the instrument to stand-alone for certain P to A thoracic maneuvers, or even rudimentary body-drop exercises. This



combination also provides resistance in both flexion and rotation. The resistance can be increased or decreased simply by moving the ring up or down on the housing of the Dynadjust instrument. This type of exercise can be introduced at any point in the program, first as a stabilizing feature for assisting



the user in developing their precision in depth control and later for advanced maneuvers requiring combined motion in rotation and flexion of the thrust, such as in a prone thoracic maneuver. Of course, the instrument records and displays the metrics of the thrust. Therefore, an instructor may assign an exercise in which he requests that a certain degree of rotation or torque is to be applied simultaneously with the posterior to anterior thrust. This arrangement is also very useful for practicing “recoil” style maneuvers, as it prevents the unit from falling off the table when the user releases tension in the



recoil portion of the maneuver. A slight variation of the arrangement of the tension ring and base-plate allows the user to practice thrusts using a table that is not ideal in height for the particular exercise.

The Dynadjust instrument can be used in any position, even with the top cap in the down position, as the instrument automatically assumes that it is in the “neutral” position as soon as it is depressed to the point of the queue to thrust.

In these demonstrations, the appliances being used are prototype units, which were printed on a 3D printer in black and white for the purpose of better contrast in the pictures.



Plyometrics

Plyometric Principles, as they apply to the Dynadjust Spinal Manipulation Training System by OrthoNeuro Technologies



[Play Plyometrics Video](#)

What is Plyometrics?

Plyometrics (also known as "plyos") is a type of exercise training designed to produce **fast, powerful movements**, and improve the functions of the nervous system, generally for the purpose of improving performance in sports.

Main purpose – heighten the excitability of the nervous system for improved reactive ability of the neuromuscular system

- Popularized in the 1970s by state sports trainers in the former East Germany.
- Benefits range from injury prevention, power development and sprint performance.
- Doubled vertical jump
- Sources for Resistance
 - Body weight
 - External forces
 - Elastic tubing
 - Elastic bands (Theraband)

Neurological & Biomechanical Influences

- Muscles have a natural tendency to rebound when stretched rapidly (e.g. rubber band)
 - Theoretically, the more rapid the eccentric contraction, the more likely the stretch reflex is activated
- Plyometric training can promote changes within the neuromuscular system that allow the person to have better control of the contracting muscles.
- Plyometrics is used to increase the speed or force of muscular contractions, providing explosiveness for a variety of sport-specific activities.

Dynadjust Research Results

- Males 9X increase in speed
- Females 18X increase in speed



Self: Exercise Name: _____ Dominant Hand: **N/A**

3 Standard #1

Notes:
for this set, I performed seated cervical adjustments with the exercise tubing

Update Result Set

Queue to Thrust: 30mm MFE: 10mm Spring Selection: Yellow
Depth of Thrust: 20mm MFE: 10mm Timing: Standard

Successful Thrusts: 8 75%

Excessive Depth: 0 25%

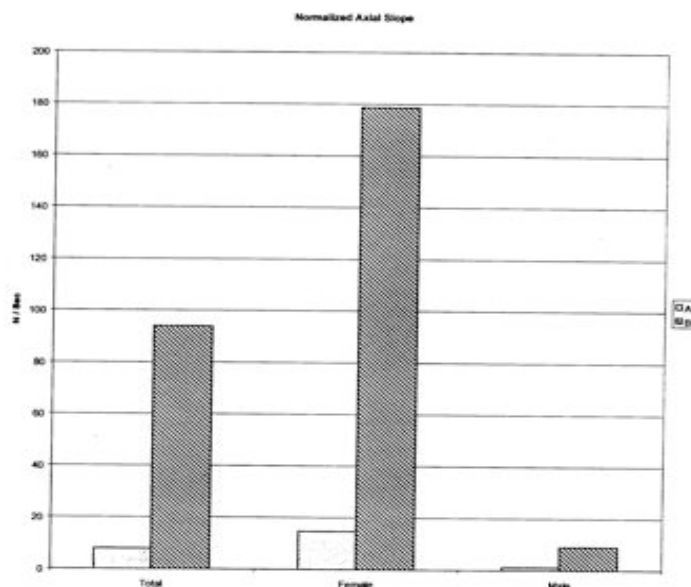
Loss of Pre-Tension: 0 0%

Avg. Thrust Time: 231.1ms
Avg. Reaction Time: 371.5ms
Avg. Deviation/Line: 9.3%
Avg. Axial Rotation: 5.2°
Avg. Force: 136.3N

#	MFE	MFE T	RD	LoD	Alt	F
	Q2T	DeT	(ms)	(ms)	(N)	(N)
1	0	14	189	565	3	136
2	0	13	476	118	8	7
3	0	5	188	325	1	0
4	0	11	187	388	8	7
5	0	2	366	147	12	5
6	0	7	163	350	20	14
7	0	4	419	90	10	4
8	0	9	162	752	10	4
9	0	10	183	416	17	8
10	0	5	189	402	8	3
11	0	10	189	425	8	3
12	0	9	148	470	10	6

12 Thrusts

Figure 1: Changes in axial speed (slope) of force development. Group A are volunteers without the Dynadjust. Group B participants used the Dynadjust.



Plyometric Effectiveness

- When speed & coordination of activity is improved, greater power can be produced
- RATE of stretch is more important than AMOUNT of stretch
- Plyometric training involves and uses practicing Plyometric movements to toughen tissues and train nerve cells to stimulate a specific pattern of muscle contraction so the muscle generates as strong a contraction as possible in the shortest amount of time. (105 mph Baseball)

Program Design

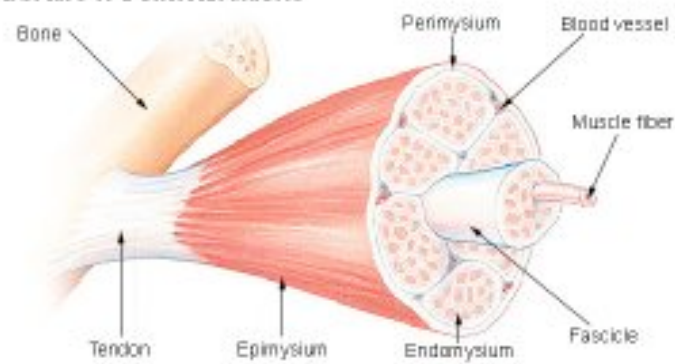
- **Intensity**
 - Amount of effort exerted
 - Can be controlled by type of exercise performed
 - Progress from simple to complex activities

Histology

- *Muscle cells*: It is generally accepted that muscle fiber types can be broken down into two main types: slow twitch (Type I) muscle fibers and fast twitch (Type II) muscle fibers.
- Fast twitch fibers can be further categorized into Type IIa and Type IIb



Structure of a Skeletal Muscle



1. Type II A Fibers

- These fibers, also called fast twitch or fast oxidative fibers, contain very large amounts of myoglobin, very many mitochondria and very many blood capillaries. Type II A fibers are red, have a very high capacity for generating ATP by oxidative metabolic processes, split ATP at a very rapid rate, have a fast contraction velocity and are resistant to fatigue.

2. Type II B Fibers

- Type II B fibers are geared to generate ATP by anaerobic metabolic processes, split ATP at a fast rate, and have a fast contraction velocity. Such fibers are found in large numbers in the muscles of the arms.



Benefit of Selected Hypertrophy

- The Type IIA fast twitch muscle fibers move 5 times faster than the slow twitch, and the super-fast Type IIB muscle fibers move 10 times faster than the slow twitch fiber.

Selected Hypertrophy Goal

- Plyometric exercise provides the most powerful contraction in the body targeting the type IIB super-fast twitch muscle fibers. This is done by eccentrically contracting or elongating the muscle *followed by an explosive concentric contraction. This powerful contraction recruits and strengthens the Type IIB super-fast twitch muscle fibers.*

Maximizing Plyometric Principles

- The muscle-stretch, and eccentric contraction components of traditional Plyometric exercise are accomplished with the Dynadjust instrument through modification of the Doctor / Patient positioning and stretchable rubber tubing Dynadjust accessories.

Conversion

- Conversion? Although the type of fiber cannot be changed from one to another, *training can change* the amount of area taken up by the fiber type in the muscle. In other words, there can be a *selective hypertrophy of fibers based on the type of training.*
- Depending on the specific intensity used in training, *the muscle may change to a 75% fast twitch area* and a 25% slow twitch area. So, when more fast twitch muscle fibers are recruited the mass of fast twitch fibers will be greater than that of slow twitch fibers.

Classification of Individuals

- Beginner
- Intermediate
- Advanced
- Master / Doctor
 - The Dynadjust System allows anyone to develop an individualized program to dramatically enhance and maintain professional HVLA skill



To Gain Optimal Benefits of a Plyometric Program

- Individual should:
 - Be well conditioned with sufficient strength & endurance
 - Exhibit athletic abilities
 - Exhibit coordination & proprioceptive abilities
 - Free of pain from any injury or condition

Guidelines for Plyometric Programs

- Sound technical foundation
- Should be specific to the goals of the athlete
- Quality of work is more important than quantity of work
- Activities should be progressive in nature
- Test dynamically to provide progression & motivational feedback



Introduction to Dynadjust D.R.E.P.,

A.C.E. and Catalog of exercises

This Dynadjust User's Guide is intended to be used as a template for customizing the integration of the Dynadjust technology into your unique program. The materials included here are by no means intended to be a comprehensive list of treatment simulations or exercises. The maneuvers presented here are listed based on the experience of the authors as a result of many years of practice. Of course, professors may opt to omit certain exercises or maneuvers that they deem to be contraindicated, and more likely add to the program with enhancements of their own.

Obviously, this guide is not intended to teach spinal manipulation, but rather to instruct Dynadjust users on the optimal methods for safely and efficiently training their own bodies for the challenges ahead. We at OrthoNeuro are always interested in hearing feedback from the field. In the event that you discover a new and useful method of using the Dynadjust instrument, we would like hear about it for possible inclusion in this guide.

The DREP and ACE exercises should serve as a template for working up individual exercise routines, based on the strengths and weaknesses of individual users. The Dynadjust Catalog of Exercises was created for the convenience of being able to assign certain exercises without the need to spend a lot of lab time explaining the exercise, and for ease of describing the work performed by the student when they up-load the data from their assigned exercise sessions.



In most cases, the exercises are described without recommendations for Dynadjust Parameter Settings. This is because each individual student will have different levels of ability and different needs and expectations for their exercise programs and assignments. You will notice that the twelve pre-programmed parameter settings are not necessarily in the order of difficulty. It is recommended that each time you plan an exercise session or assignment, review the settings and perhaps even test out the ones that you believe are best suited for that particular exercise. Of course, in real-life treatment each patient will be different in terms of the stiffness of their anatomy and the problem that you are addressing. It takes a great deal of experience in palpation and diagnosis to decide on what type of manipulation is optimal for any given treatment. For the purpose of training for actual practice, the Dynadjust allows the user to experience a wide variety of depth settings and resistance levels.

The most important aspect of training with the Dynadjust is learning to modulate your force and to be able to control your vector and depth. For this reason, mixing up your settings and keeping track of your daily regimens to discern where you might be in need of extra control is very important for maximum results from your work. For the purpose of learning to modulate and control your force, vector, and depth, it is important to train to produce your thrusts with variations in these metrics from the very beginning.



It is recommended to follow the sequence below:

- 1) Select a treatment posture and be sure that you have the posture as close to the real treatment scenario as possible with the Dynadjust exercise equivalent, and to protect your own back. Viewing and emulating the twelve standard exercise videos will provide a great starting point. Your instructor will inevitably want to add to these suggested exercises, possibly even delete some or extrapolate on the instructions provided in the videos.
- 2) Select parameter settings that seem appropriate, based on advice from your instructor. Try to find three settings that, for this exercise could be considered an “easy” one, a “medium” one, and a “challenge” setting. (For instance, a cervical break exercise with the black spring and the exercise tubing simulating the weight of the head of the patient on the “indifferent” wrist, and using parameter setting #5 or #6, and seeing speed in the .04 range with 3500N or better in force, combined with good vector control is “master’s level” work which will take a tremendous amount of practice.
- 3) Begin practicing with the lightest spring selection at first (the exception being side-posture and some body-drop exercises), and check to see where your weak points may exist. For example, are you having trouble holding pre-tension? Is the depth metric difficult to hit with this posture and setting? Are you straying from a straight line-of-drive? Each of these problems can be overcome with practice, and sometimes by changing one or more of the settings and resistance levels.
- 4) Once you begin to see a preponderance of “Success” with your thrusts, the first enhancement to your regimens should be to increase the spring tension and start over. Don’t worry about speed and force until you have the other metrics under control, and see at least an 80% successful thrust rate with good vector control.

- 5) Once you have the chosen exercise going well with the stiffest spring, begin working on your speed and force. Start with the lightest spring and work up to the heaviest spring, going for speed and force increases while maintaining your control. You may find that it is much more difficult to control your vector with the heavier springs. (Remember, the Dynadjust instrument uses the spring



constant that is programmed into the firmware in the on-board computer within the unit to report force. You must always remember to “tell” the instrument which spring is in the unit, in order to receive accurate force readings!)

- 6) Once you are seeing high speed and force readings with the different springs, begin practicing to produce modulations of your thrusts. Strive to become proficient in producing 1/3, 1/2, 2/3, 3/4 of your maximum on command. This kind of modulation capability is the hallmark of a true master!

- 7) Finally, there will be variations on each exercise, such as angle variations, accessory work with the exercise tubing and Dynadjust Appliance. Also, remember to work both hands / arms so that you become just as proficient with your non-dominant hand as your dominant hand, where applicable.



- 8) One of the most productive Dynadjust exercise regimens is a game called “Dynadjust Round Robin”. To play the game, you need a group of at least three or more people. The more the better.

- The group decides on an exercise posture to be used for the game. It is helpful to watch the other participants to observe their posture, and make helpful suggestions where appropriate.
- Each participant sets his Dynadjust Instrument to a random parameter setting, and spring selection. Then they do one thrust so that the description of the setting is not visible, and you pass your instrument to your neighbor, and receive one in kind.
- Each participant begins exercising in the pre-selected posture, and does his best to find the “groove” of the setting, and produce good thrusts in the posture selected.

- d) When each person has completed one set, they re-set the instrument, either by pressing button #2 to repeat the same settings, or by choosing new settings for the next round.

If you take this game to the extreme, and keep track of who did what sets, you can upload the data after up to 16 sets have been loaded into each unit, and see the results of the challenge. This game is fun and very beneficial. Remember, when you are in practice, you will be moving from room to room and treating different patients with different body types and different problems. This is a fun way to get used to the challenge of real practice! This game is also a terrific lab exercise!



Research has shown that most chiropractic practitioners do not reach their peak physical abilities until they have been in practice **for five years!** Another study showed the most practitioners have very little ability to modulate their force at will. Of course these are generalities, and there are many in our profession who possessed natural talent right from the start. For the rest of us, the Dynadjust was designed specifically to close that five-year gap, and to produce graduates who possess superior skills when they start practice! The Dynadjust System not only provides a safe way to practice actual thrusting techniques with instantaneous beneficial feedback, but also to make actual beneficial physiological changes in our bodies that will serve us, and our patients, throughout our careers!

Dynadjust Rudimentary Exercise Program #1

Posterior to Anterior HVLA



The Dynadjust HVLA Training System is designed to develop, maintain and enhance skill in delivering HVLA therapies.

The Dynadjust Rudimentary Exercise Program (DREP) consists of sets of relatively *generic* exercises, which can be performed as supplementation or adjuncts to the more specific instructor-assigned exercises. Your instructors will gradually introduce these exercises as your Dynadjust HVLA Training Program progresses. As with all technique exercises, your posture and form are essential. Your instructor will advise you of the proper variations in posture and form in order to maximize the benefits of the training regimens and to protect yourself from injury.

DREP #1: Posterior to Anterior HVLA Thrust Training: This exercise is performed with the Dynadjust instrument positioned on a treatment table or other appropriate surface, with several variations.

Suggested Parameter Settings & Goal Metrics

Parameter Setting	Yellow Spring		Red Spring		Black Spring	
	Speed	Force (Nu)	Speed	Force (Nu)	Speed	Force (Nu)
Parameter #1	.04 sec	7800	.04 sec	9500	.03 sec	9800
Parameter #2	.04 sec	5700	.03 sec	9500	.04 sec	9600
Challenge #4					.04 sec	7500

- Dynadjust instrument positioned vertically (90-degree angle) to the table with the thrust being straight down (*Picture 1.1*)
- Dynadjust instrument positioned at approximately a 30-degree angle to the table for an inferior to superior thrust. (*Picture 1.2*)
- Dynadjust instrument positioned at approximately a 30-degree angle to the table for a superior to inferior thrust. (*Picture 1.3*)



Picture 1.1



Picture 1.2



Picture 1.3

Notes: Depending on the work surface that you choose for this exercise, the Dynadjust instrument can be fitted with the rubber cap(s) provided, to help prevent it from slipping on the surface. The hand positions for this exercise are relatively more important than for other exercises. Hand positioning should be alternated between at least the following (your instructor may assign variations). For exercises in which one hand is the “indifferent hand” (such as here in DREP #1, the single pisiform contact exercises) it is recommended that you perform at least 25% more exercise with your non-dominant hand.

- a) Bilateral Thenar Eminance (*Picture 1.4*)
- b) Bilateral Hypo-Thenar Eminance (*Picture 1.5*)
- c) Single reinforced pisiform contact (right and left) (*Picture 1.6*)



Picture 1.4



Picture 1.5



Picture 1.6

Dynadjust Rudimentary Exercise Program #2

Simple Left to Right and Right to Left HVLA



DREP #2: Simple Left to Right and Right to Left HVLA training.

This exercise is performed with one hand holding the bottom cylinder stationary, and performing the thrust into the “Top Cap” with the other hand. DREP #2 is an exercise that is used to strengthen mostly the hands, wrists, arms, and pectoralis muscles. It is one in which one hand serves as the “indifferent hand”, and the other as the “thrusting hand”. This exercise is excellent for developing the strength, speed, and accuracy needed for a wide variety of doctor / patient scenarios, especially for cervical work.



This exercise should be initially performed with the Dynadjust instrument held in one hand and braced against a solid surface, such as the side of a treatment table head-rest. The user should start with the yellow spring, and an appropriately liberal parameter setting, such as #3 or #4. The user should begin exercising with the focus on a straight line-of-drive within the parameter settings.



Suggested Parameter Settings & Goal Metrics

This example exercise body position will be with the unit held in each hand at approximately chest level (without accessory ring attached).

Parameter Setting	Yellow Spring		Red Spring		Black Spring	
	Speed	Force (Nu)	Speed	Force (Nu)	Speed	Force (Nu)
Parameter #1	.04 sec	7000	.04 sec	9000	.04 sec	9500
Parameter #2	.03 sec	8500	.03 sec	9500	.04 sec	9000
Challenge #5					.04 sec	4500

As accuracy increases, stiffer springs and more challenging parameter settings should be used, and the student can begin practicing for speed and force. Once the depth and line-of-drive control acumen is coming along, the user can begin performing the exercise by holding the instrument with only the hands, and without bracing it against the stationary object. The user will usually find this “free-hand” approach to be much more difficult, especially for line-of-drive accuracy, and may need to return to lighter springs and more forgiving parameter settings at first.

The contacts for these exercises can start with the palms of the hands. As strength and coordination increases, the user should begin using the radial aspect of the index finger for the thrusting hand contact (With this contact, the user will find that utilizing the soft rubber cap will ease the transition). For some students, there will be a need to proceed slowly through the exercises and resistance settings, in order to “work-harden” the fingers, hands, and wrists.) The user should alternate the indifferent hand between palm up and palm down, to further enhance the effects of the exercise.

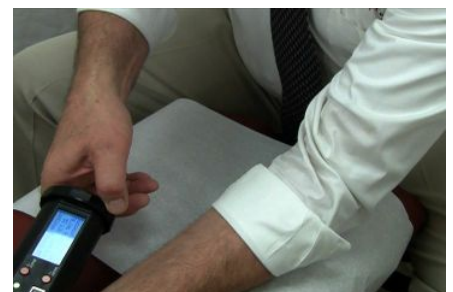


This particular exercise can be performed with the Dynadjust Ring Appliance attached for increased support for beginners. The tension on the ring can be gradually reduced until the user has gained the strength needed to grasp the instrument without the need for the appliance. The Appliance can be attached in two ways, to lend variation, and extra benefit to the exercise.



There are a variety of doctor / patient positioning postures for which this exercise is appropriate. Your professor will introduce these postures in the order that is most appropriate for the program. The most common postures would include the following:

- a) Supine cervical break and first rib with directional variations



b) Prone cervical and cervical and thoracic with directional variations



c) Seated cervical and first rib with directional variations



Variations and advanced exercise techniques will include the use of the exercise tubing, to simulate holding the weight of the patient's head in the indifferent hand.

Advanced training will include combined motion maneuvers. Your instructor will prescribe goal metrics for these advanced simulations.



Mastering the ability to modulate force / speed, and extremely precise directional and depth control are especially important for these techniques. It is also of paramount importance that you are able to perform these techniques as well with your non-dominant hand as you can with your dominant hand. As a general rule, it is recommended that the user practice approximately 25% more with the non-dominant hand as the “thrusting hand.”

Dynadjust Rudimentary Exercise Program #3

Side Posture Lumbar / Sacroiliac Push HVLA



DREP #3: Side Posture Lumbar / Sacroiliac Push HVLA. In this exercise, we will be simulating a side-posture lumbar mammillary or sacroiliac joint HVLA push maneuver. This exercise can be practiced with our without a table. It is very important to maintain excellent form and posture, in order to protect your own lumbar spine.

Suggested Parameter Settings & Goal Metrics

This example exercise body position will be the “beginners stance” with the base of the Dynadjust is stabilized against the Hip of the Doctor.

Parameter Setting	Yellow Spring		Red Spring		Black Spring	
	Speed	Force (Nu)	Speed	Force (Nu)	Speed	Force (Nu)
Parameter #10	.05 sec	3700	.05 sec	4900	.06 sec	4800
Parameter #11	.06 sec	4500	.07 sec	4700	.07 sec	5800
Challenge #9					.05 sec	3200

In this exercise, the bottom cap of the Dynadjust instrument is firmly braced into the body of the user near the anterior aspect of the hip, near the acetabulum, on the side opposite the thrusting hand. The stance is a variation on the Fencer Stance, or as prescribed by your professor. The thrusting hand is positioned on the top cap of the instrument with a pisiform contact with the palm facing the doctor. The indifferent hand is stabilizing the instrument against the hip. The doctor is bending at the waist with knees flexed. The thrusting elbow is flexed, and out in front of the instrument, with the forearm nearly parallel to the floor. The wrist is extended, with the thrust being in a slightly oblique angle (low to higher), and almost directly toward the groin area.



The primary muscles involved are the pectoralis, triceps, and latissimus groups. As usual, these muscles should be flexed during the pre-tension phase of the thrust to accentuate the isometric component of the exercise.

A less strenuous version of this exercise, which could be used as a beginning exercise, would be to anchor the base of the instrument between the leg and the table, using the table as a stabilizing support for your body. The actual “real-life” angles for this maneuver would depend on how much rotation of the lumbar spine is used in the patient positioning. This exercise lends itself to many different actual manipulation maneuvers, and should be practiced with various angles and parameter settings, as prescribed by your professor. In real-life manual manipulation therapy, this HVLA push maneuver is often combined with a “body-drop” procedure. Once the push component is mastered, your instructor will likely recommend practicing this move with a body-drop component added. See DREP #4 for details.



Dynadjust Rudimentary Exercise Program

#4 Body Drop



[Play D.R.E.P. #4 Video](#)

Many manipulative procedures are performed with a body-drop by the doctor. For example, a supine thoracic maneuver involves positioning the patient on the table in various postures. Depending on the patient positioning, proper hand placement and a body-drop, by the doctor, will result in mobilization of thoracic segments into flexion or extension.



Many side-posture maneuvers combine an HVLA thrust from the hand with a body-drop designed to mobilize the spine into rotation. -



Using the Dynadjust instrument for body-drop exercises is a relatively straight forward methodology. The instrument can be positioned between the body of the doctor and the table for a variety of variations. Generally, the parameter settings used with the instrument involve more pre-tension and thrust depth. Unlike most Dynadjust exercises, starting with the stiffer resistance settings, such as the black or red springs will be easier. This is because it is actually more difficult to control your body in this position with the lighter springs in use.



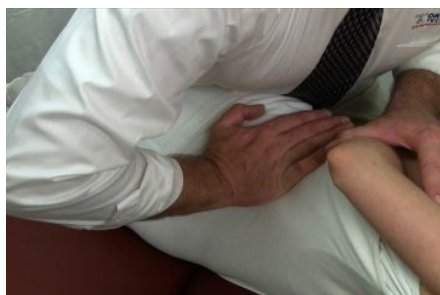
Supine exercises should begin with the Dynadjust instrument positioned perpendicular to the table at 90 degrees. It is especially important to maintain proper form, and to protect your own back during these exercises. Since the hands and arms are essentially free for these exercises, it is acceptable to use your arms to help stabilize your back, just as if you would with a patient in supine or side-posture positions. Variations on this maneuver would include having the Dynadjust positioned at different angles to simulate motions

that would induce extension or flexion, depending on the angle used. The rubber caps will help hold the instrument at the proper angle on the table.

The appliance can be utilized to stabilize the instrument on the table for an easier approach to these exercises in the beginning. For more advanced techniques, the exercise tubing can be used to simulate holding a patient into flexion during the body-drop maneuver.

Lumber / sacroiliac push maneuvers, and body-drop exercises can be performed separately for evaluation of your performance with the two components of the exercise.

Then, with careful positioning of the instrument and your form, these maneuvers can be performed simultaneously for a more realistic simulation of the maneuvers.



Suggested Parameter Settings & Goal Metrics

This example exercise body position will be a straight body drop with the instrument positioned perpendicular to the table and with the top cap of the device positioned just below the sternum (without accessories).

Parameter Setting	Yellow Spring		Red Spring		Black Spring	
	Speed	Force (Nu)	Speed	Force (Nu)	Speed	Force (Nu)
Parameter #10	.11 sec	900	.10 sec	1400	.09 sec	2500
Parameter #11	.10 sec	1600	.10 sec	2300	.09 sec	3300
Challenge #9					.09 sec	825

Dynadjust Rudimentary Exercise Program #5

Push and Pull HVLA Maneuvers



The Dynadjust instrument can be used to great advantage in training for HVLA push and pull maneuvers, such as would be used in a large variety of extremity HVLA procedures, and even for a lumbar “Spinous Hook” maneuver.



Dynadjust push exercises can be used in practicing for pubic symphysis maneuvers, standing rib techniques, or even certain shoulder treatments. For this maneuver, it is a good idea to practice with your right and left hands separately, using the non-thrusting hand to stabilize the instrument against a stationary object, or as your strength and coordination improve, to simply hold the instrument steady for the thrust. As usual, for these exercises, you should concentrate your emphasis line-of-drive and depth control before you begin exercising for speed and force.



The contact is usually the palm of the hand, with the fingers grasping the top cap of the instrument, or in the case of a pull maneuver for a foot or ankle manipulation, a hypothenar contact will work well. For simulating a hip joint (femoral / acetabular) or knee maneuvers, a double handed pull thrust, with fingers interlaced over the top cap of the instrument will produce good results.



For the lumbar spinous hook maneuver, you will utilize a posture similar to the other side-posture exercises, with the finger tips of the active hand holding the top cap of the instrument, and the base of the instrument held against your chest. Be sure to protect your lower back by utilizing the correct posture, and / or bracing your body against a treatment table.

*Experiment with the instrument with a variety of parameter settings starting with parameter settings #1, 2, 3 for each of the postures described in this chapter.

Dynadjust Rudimentary Exercise Program #6

Advanced Techniques and Combined Motion

Play D.R.E.P. #6 Video

The Dynadjust instrument is capable of measuring not only the speed and force of your HVLA exercise thrusts, but also rotation around the long axis of the instrument, and lateral motion of the instrument as well.



Some HVLA procedures utilize combined motion for maximum therapeutic value. For instance, in a simple cervical-break exercise, you might combine a certain degree of lateral motion to help induce rotation in the vertebral segment(s).



The Dynadjust instrument measures lateral motion in percentage from neutral. When you load and hold the instrument with your simulated tissue-pull or Pre-Tension, the internal computer assumes that this is the “neutral” position. As you perform your HVLA thrust, any variation from a straight line of drive is reported on the screen, and ultimately as a part of the metrics of the thrust when up-loaded to the OrthoNeuro Service Center. Therefore, you have the ability to set goals for how much lateral deviation that you would like to combine with the thrust. Your instructor will assign certain metrics for these exercises.

This kind of combined motion is also often used in seated cervical manipulation procedures. The practitioner performs not only the HVLA thrust through the target segment, but adds some lateral motion as well.

In prone thoracic manipulations, the practitioner may want to impart rotational motion, or *torque*, as a combined motion with his posterior to anterior HVLA thrust. The Dynadjust instrument measures rotational motion in degrees, and it is also reported both on the instrument screen and on the Service Center. These exercises are more advanced, and somewhat more difficult to perform.



It is recommended that you begin practicing these maneuvers first with the Dynadjust instrument alone, and later, as skill develops, you can introduce the exercise tubing to replicate the weight of the head of the patient for the cervical simulations. In the posterior to anterior prone thoracic simulations, you can utilize the Dynadjust Base-Plate, and even later, you can begin using the base-plate and the Tension Ring with the exercise tubing arranged to provide various levels of rotational and even lateral resistance ([see chapter on the Dynadjust Appliance](#)).



*For the specialty maneuvers described in this chapter your instructor will suggest degrees of rotation and percentages of line of drive for the various positions, postures and maneuvers.

Dynadjust Rudimentary Exercise Program (D.R.E.P.) Video Enhancement Suggestions

In the course of participating in your laboratory classes and performing your home-study work, the Dynadjust Rudimentary Exercise Program can be greatly enhanced by viewing the videos which correspond to the DREP assignment on which you are working.

Here is a list of the selections from the Twelve Standard Dynadjust Tutorial Videos that most closely correspond to the individual DREP lessons. Watching these videos will help to give you a solid foundation for perfecting your postures and techniques. They will also help you to decide on what emphasis should be placed on specific exercises to match your abilities and goals as your skills increase.

DREP #1: **Video #4**

DREP #2: **Videos #2 and #3**

DREP #3: **Videos #5 and #6**

DREP #4: **Videos #5 and #6**

DREP #5: **Videos #2, 4, 6, 7, 8, 9, 10, 11, and 12**

DREP #6: **Videos #1, 4, 6, 8, 9, and Combined Motion Compilation Video**

Ancillary Conditioning Exercises (ACE)



[Play A.C.E. Video](#)

The Dynadjust instrument can be used for a myriad of exercise techniques which do not necessarily resemble or simulate actual doctor / patient positioning or therapeutic HVLA thrusts. These exercises are designed to target and train specific muscle groups for strength and coordination. They will also enhance the fast-twitch muscle fiber strength and recruitment within the groups being trained.

These are exercises that can usually be performed without the need for a treatment table or other special equipment, and should become a part of your standard training routine. They should be performed with regularity, and on a specific schedule. They should be used as an adjunct to your assigned exercises, and the exercise bar, tubing and water bag exercises.

The Dynadjust Users and instructors should study the parameter settings for the instrument, and decide on which parameters best suit these routine exercises. Start with settings with more liberal margins for error, and gradually work toward the more challenging settings and resistance levels. Use the Service Center to evaluate your progress with your routine, and to observe the differences between your performances with your dominant hand over your non-dominant hand, and adjust your routine accordingly.

Ideally, a master of HVLA manipulation procedures should be able to perform any Dynadjust exercise with any parameter setting and resistance level, with a high degree of control over the depth and line-of-drive, and be able to modulate your force and speed at will. Continually challenge yourself with harder and harder routines and goals. Do at least several sets of each exercise on a schedule that suits your level of fitness. Alternate days to do extra sets on one or two exercises from this basic selection in addition to your assigned exercises. Gradually build up your abilities and endurance levels. Your instructor may wish to add to your ACE regimen, or ask you to focus on particular ACE exercises, either in anticipation of upcoming assignments, or as a function of his or her own experience in training regimens in general. Always remember to concentrate on maintaining the correct form and posture to avoid injury.

If a specific exercise is prescribed by your instructor, which closely resembles one of these ACE exercises, or incorporates specific muscle groups involved, you might

consider deleting that particular ACE exercise for that day, and concentrate your energy on the assigned exercise.

Most of these ACE exercises provide extra opportunity for plyometric benefits. To maximize the potential for plyometric development of the fast-twitch fibers in the various groups, be sure to concentrate on flexing the appropriate muscles during the pre-tension phase of the thrusts.

1. Triceps Isolation



2. Pectoralis Isolation Exercise



3. Body Drop Exercise



4. Push Exercise



5. Pull Exercise



6. Latissimus Isolation Exercise



Introduction to Dynadjust Catalog of Exercises

The Dynadjust Catalog of Exercises is provided as a means for instructors to assign specific Dynadjust exercises to be performed by the students as home-study or classroom routines. The exercises are not in any particular order, and can be assigned based on the order in which different techniques are introduced within the classroom or lab.

These exercises are by no means a comprehensive list of manipulative procedures or simulations. There are literally hundreds of variations in technique, and professors are free to introduce different exercises or variations on those presented herein, as well as to omit any exercise that they might consider to be inappropriate.

Of primary concern to any student or instructor are the safety of the students and the efficacy of the exercises. Here is a list of tips to help ensure that each student receives the maximum benefit of training with the Dynadjust HVLA Training System.

- 1) The Dynadjust Instrument is a spring-loaded device. As such, when the instrument is compressed, the spring within is storing potential energy. The locking lugs on the bottom cap of the instrument are designed to be easy to use for changing the springs, and to securely hold the spring in place during use. Always be sure that both of the lugs snap into place when the cap is replaced after a spring change. In most exercises, the bottom cap is supported, either with a hand, or against another object. In exercises where this is not the case, be sure that the bottom cap is not pointed directly at another person, in case of a failure of the locking mechanism.
- 2) Always pay close attention to your instructor as he or she describes the proper posture for each exercise. It is very important to protect your own body from injury by utilizing postures that minimize stress to your low back, etc. Be sure to always utilize appropriate postures during your exercise sessions. Remember, in many instances, inappropriate postures will prevent you from receiving maximum benefit from your exercises.
- 3) Resist the temptation to rush through your exercises. As you continually challenge your body to perform at higher levels, you will want to achieve a certain level of fatigue in order to develop the strength and conditioning needed to perform at professional levels.



However, when you begin to fatigue you will notice that your accuracy will diminish and you will produce fewer “successful” thrusts. For maximum benefit from your training exercise with the heavier springs toward the end of your routines and when you begin to fatigue replace the spring with a lighter one and continue for “a few more sets.”

Instructors generally recommend that the pre-tension or “tissue-pull” simulation phase of your thrusts be held for a minimum of 3 to 5 seconds prior to each thrust. This done in order for you to gain maximum benefit from the isometric aspects of Dynadjust training. However, you may decide to hold pre-tension for even longer, in order to benefit from even more challenging routines. It is also

important for you to think about which muscles of your body are the “primary movers” for any given exercise. In order for you to receive maximum benefit from your exercises, concentrate on flexing these muscles during the pre-tension phase of the thrust. The harder you flex, the more muscle fibers will be recruited into the thrust. Research shows that flexing



these muscles prior to the “explosive” burst of speed in the thrust will result in very beneficial physiological changes in your body. This is the plyometric principle in play. The musculature of the arms and shoulders in the human body contain a much higher proportion of “fast-twitch” muscle fibers. The ultimate goal of Dynadjust training is for you to develop your fast-twitch fibers to be recruited more completely and earlier in the thrust, resulting in expert-level speed of your HVLA treatments. (For a more comprehensive explanation of the Plyometric benefits of Dynadjust training, please see the [Plyometrics](#) chapter).

- 4) Of course, a student need not upload every set performed. You are welcome to upload as many as you choose, but many students reserve the upload feature for assigned exercises only. Instructors may discern which data are assigned uploads, and which are not, by observing the date of the exercise, which is recorded on the Service Center. ***Therefore, an instructor may ask the students to up-load only assigned exercises on specific dates, in order to make it easier to evaluate the performance on the assignments.*** Students may exercise as much as they like or need, and simply erase stored sets from their instruments whenever they like, or especially before performing assigned sets of exercises! (See the [Dynadjust Tutorial](#) chapter for information on how to delete stored

sets.) A suggestion on how to personalize your Dynadjust routine is to watch all twelve of the “[Twelve Standard Dynadjust Exercise Videos](#).” Perform sets of each type of exercise with various resistance levels and postures, and decide for yourself which of the DREP and ACE regimens are most appropriate for your level of skill and most beneficial for your improvement. No matter what you decide, in terms of personalizing your Dynadjust regimens, be sure to make Dynadjust exercises a part of your daily routine.

- 5) Even though the Dynadjust instrument comes with an environmentally friendly rechargeable battery with exceptional battery life, it is recommended that you charge the instrument regularly, especially before starting an assignment or before taking your instrument to class or lab. It is also recommended that you occasionally (once per month or so)

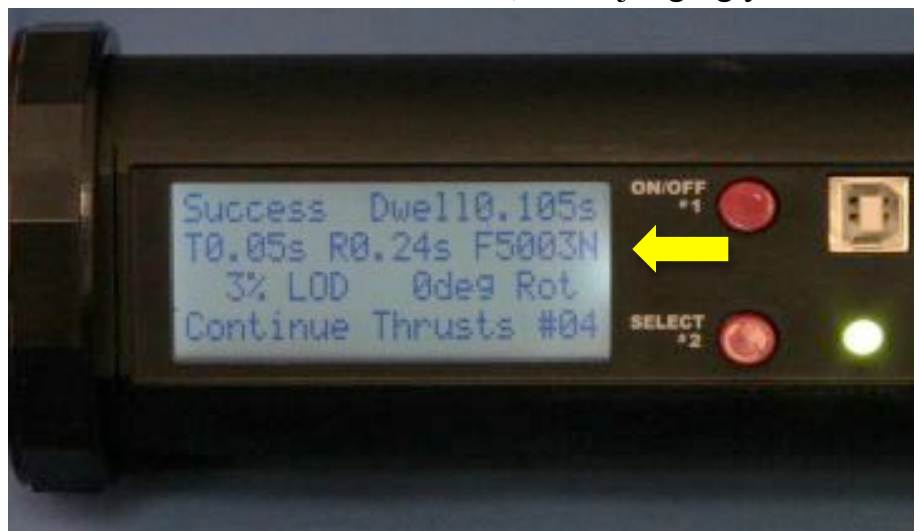


“cycle” your Dynadjust battery to ensure long service. To cycle your Dynadjust battery: Turn on the unit by pressing button #1. As soon as the first screen is visible, press and hold button #1 again until you see another screen. This will put the instrument in “lab mode” which is used by the factory to calibrate the instruments. If you move the unit while in lab mode, you can see the accelerometers display the motion in the X, Y, and Z vectors. When in “lab mode,” the instrument will stay “on” until the battery is fully expired. Once the battery is completely dead and the screen is blank, plug in the instrument and allow it to charge until the screen shows a full charge.

- 6) A fun and interesting way in which to utilize your Dynadjust instruments is in a group setting, either in class, or in a home-study group. Decide on a doctor / patient posture, in which to practice. Have each person program their personal instrument with a different parameter setting and resistance level, and do one thrust with the instrument so that the settings are not visible to the user to whom the instrument will be passed. Pass your unit to your neighbor, and take an instrument from another student. Begin practicing in the pre-chosen posture, with each participant doing one set with each instrument, and then passing the instruments around the group at random. Remember, the first six thrusts are “practice thrusts” to allow the user to “find” the parameters that have been programmed into the instrument. The last 12 thrusts are recorded on the instrument, and can be uploaded. Also remember that even though not every parameter setting is perfectly suited

to every doctor / patient posturing, a true master of the art of manual manipulation should be capable of performing well in any position, with any resistance level or parameter setting. It is useful to take note of which exercises you find difficult, and practice those exercises as an extra part of your regular regimen.

- 7) Always begin a new Dynadjust exercise regimen with your emphasis primarily on your form, accuracy in line-of-drive, and depth control. Even though the speed of an HVLA procedure is very important, the precision of your thrusts is even more important. Once you have gained proficiency in the delivery of your thrusts with a high degree of precision, you can begin practicing to add speed and force. In most cases, it is best to start with lighter springs for lower resistance in practicing for your thrusts. As you gain control over your vectors, increase the tension with stiffer springs. Finally, as your body develops the coordination needed for the doctor / patient simulation that is the focus of your work, you should begin to increase the speed of your delivery. On the Dynadjust instrument screen, speed is reported to three decimal points, such as “T=0.13”. This shows that the thrust speed was 13 hundredths of a second. However, the force of the thrust is reported to four decimal points. Therefore, since the force of the thrust goes up exponentially with the speed of the thrust, you can have a significant difference in force delivered within the span of one tenth of a second. For this reason, when judging your improvement in the speed and force of your thrusts, it is more accurate to go by the Force reading.



- 8) Once you are highly proficient in controlling the vectors and depth of your thrusts, modulation of the force delivered is perhaps the most important aspect of HVLA manipulative therapies. It is of paramount importance that you are able to modulate your force at will. You should practice your sets with emphasis on varying your force between 100%, 50%, and so on. Studies indicate that, in general among field practitioners, their ability to modulate force is surprisingly lacking. The Dynadjust HVLA Training System is the first and only technology that allows a student or practitioner to perform practice regimens specifically designed to develop these skills.

With the intrinsic instantaneous feedback from the screen on the instrument, coupled with the “breakdown” of your performance metrics on the OrthoNeuro Technologies Service Center, we now have the ability to identify weaknesses in performance, and the tools needed to quickly and efficiently remedy these deficiencies.

- 9) The Dynadjust instrument requires very little maintenance. It is a good idea to occasionally wipe any oil or dirt from the actuator rod, when you change springs. Use a soft damp cloth to wipe the outside of the unit when needed. Be sure to never remove the top cap, or the faceplate of the device. If your instrument fails in any way please contact your school for a replacement unit. If you are not affiliated with a school, please [contact OrthoNeuro Technologies](#) directly. We will send you a replacement unit immediately.



Dynadjust Catalog of Exercise Assignments #1

Posterior to Anterior (P to A) HVLA Thrusting

Play Catalog Video #1

One of the most quintessential of all HVLA maneuvers, this exercise would be an integral part of any testing venue, and is one for which the Dynadjust System is particularly well suited. It lends itself to a wide variety of doctor / patient postures and procedures, including prone thoracic and prone sacroiliac joint maneuvers.

Suggested Parameter settings - Beginner: #4, #3. Advanced: #5, #6, Expert: #7

Applicable Videos / User's Guide Materials - [Video #4](#), [DREP #1](#), [ACE #1](#)

Posture - Modified Fencer Stance with the Dynadjust instrument arranged as described in the assignment at approximately waist height, with your shoulders over the instrument (or as assigned by your instructor).

Contacts - Bilateral thenar eminence, bilateral hypothenar eminence, Dynadjust instrument cap grasp. (Advanced Variation: One-handed P to A thrusting)

Thrust - Straight line of drive

Review recommended materials before starting.

Assignment A

Perform the following sets using STANDARD TIMING

Dynadjust position: Dynadjust instrument perpendicular to the table.

1. Parameter setting #3: two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
2. Parameter setting #4: two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow.



Upload these 12 sets.

Assignment B

Perform the following sets using STANDARD TIMING.

Dynadjust Position: With the Dynadjust instrument on the table at approximately a 30-degree angle with the top end tilted toward the “head” of the table. Position your body over the top of the instrument for a ***posterior to anterior and superior to inferior thrust***.

1. Parameter setting #3: Two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
2. Parameter setting #4: Two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.



Assignment C

Perform the following sets using STANDARD TIMING.

Dynadjust Position: With the Dynadjust instrument on the table at approximately a 30 degree angle with the top end tilted toward the “foot” of the table. Position your body below the top of the instrument for a ***posterior to anterior and inferior to superior thrust***.

1. Parameter setting #3: Two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
2. Parameter setting #4: Two sets with each spring, starting with yellow to red to



black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.

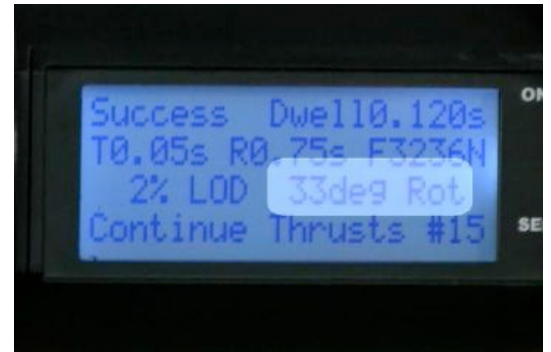
Assignment D

Perform the following sets using STANDARD TIMING.

Dynadjust Position: With the Dynadjust instrument perpendicular to the table at a 90-degree angle. Position your body over the top of the instrument for a *posterior to anterior thrust*. Perform the P to A thrusts *and simultaneously incorporate approximately 30 degrees of rotation with the thrust*.

1. Parameter setting #3: Two sets with each spring, starting with yellow to red to black *with the rotation alternating between right and left with each thrust*. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
2. Parameter setting #4: Two sets with each spring, starting with yellow to red to black, *and alternating right and left rotation*. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.

Note: It is acceptable to grasp the top cap with your fingers to aid in the rotation. Even though this would not be exactly the hand contact that you would use on a patient, it will help strengthen your fingers. The Dynadjust is a trainer, not a simulator. While we strive to replicate the postures to closely resemble actual doctor / patient positioning, in some cases, for training purposes, a variation on the contact with the Dynadjust instrument is beneficial. If you find that you are becoming quite proficient with these exercises, increase the challenge by using more demanding parameter settings, and by varying your goals for the amount of rotation you impart with your thrust. As you up-load your exercises to the OrthoNeuro Service Center, take note of your accuracy in



the rotation exercises and your performance in general. Once you are seeing a preponderance of “successful” thrusts, you should begin to perform your exercises in increase your speed and force. For maximum benefit from your sessions, train to alternate your thrusts between your maximum force, and 50% of your maximum force. ***Learning to modulate your force and speed is one of the most important objectives of training.*** It can also be very beneficial to train with these exercises using a table height that is lower or higher than the ideal height for you. If you do not have a table that is adjustable for height, you can stand on some suitable fixture to simulate having the table “too low”. To simulate a table that is “too high”, you can place a book, or other suitable fixture under the Dynadjust instrument. For the angled thrusts, you may want to use the rubber end-caps to help stabilize the instrument at the proper angle.

Assignment E

Advanced “master’s level” exercises. Perform the above assignments with the instrument positioned at the 30 degree angles AND simultaneously incorporate the rotation, right and left, with your angled thrusts. For more advanced variation, try isolating your triceps muscles while doing the exercises as in ACE #1.



Instructor’s Suggestions and Notes for Catalog of Assignments Part #1

As you demonstrate set-up postures and discuss indications for treatment, the palpation skills and anatomy involved with a particular maneuver, you can assign Dynadjust exercise work to help establish baseline skill levels for each student. Parameter setting #4 has narrower margins for error for the tissue-pull by 50%. If you see that the student is losing the tissue-pull prior to the thrusts, and a preponderance of insufficient depth failures, especially with the heavier springs and the later thrusts, the problem will likely be worse with parameter setting #4. Corrective prescriptions would include extra work with DREP #1, ACE #1, and exercise rod work that isolates the triceps groups (with the bar positioned behind the head with elbows bent). Advise the student to do the corrective work, and repeat this assignment in approximately one week. If the student shows difficulty performing the thrusts in a straight line of drive, more practice is indicated. Ask the student to practice these thrusts with the emphasis on LOD instead of speed. When



the student is getting close to 80% successful thrusts, it is time to focus on speed / force modulation. Speed / force modulation exercises are usually performed with the black spring, for training purposes, as it is a fair expectation that if they can achieve good modulation with the heavier springs, they should have little trouble doing even better with the lighter springs. For this particular exercise, with the black spring, and parameter setting #3, the student should be able to consistently produce successful thrusts approaching 2000 N, and should be able to modulate back and forth between 50% and 100% of their maximum on command.

Once the student has mastered these metrics, you may choose to assign this type of exercise using more advanced thrusting techniques, such as various angles (instead of perpendicular). Advanced exercises would incorporate combined motion. Suggested metrics for rotation combined motion thrusts would be approximately 30 degrees, in both directions, and for lateral combined motion thrusts, approximately 10% in forward and back, and side-to-side. Even more advanced work would involve using the Dynadjust Appliance to provide resistance in the rotation and lateral direction combined motion thrusts. The Tension Ring component of the Dynadjust Appliance can be used with exercise to accommodate nearly any table height. Simply secure the Tension Ring onto the lower cylinder with the concave side down (toward top cap). Slide the ring up or down on the cylinder to accommodate table height. This configuration is useful for bilateral thenar, hypothenar, or pisiform contacts.

Dynadjust Catalog of Exercise Assignments #2

Side to Side Exercise



Another of the most quintessential of all HVLA maneuvers, this exercise would be an integral part of any testing venue, and is also one for which the Dynadjust System is particularly well suited. It lends itself to a wide variety of doctor / patient postures and procedures, including supine cervical, prone cervical, seated cervical and some extremity maneuvers.

Suggested Parameter settings - Beginner: #4 #3, Advanced: #6, Expert: #7

Applicable Videos / User's Guide Materials - [Video #1, #2, #3, #9, #10.](#)
[DREP #2, #6.](#) [ACE #2, #4](#)

Posture - Seated at the head of a treatment table or in an armless chair. Standing slightly bent at the waist, standing with arms out in front of the shoulders (or as assigned by your instructor).

Contact - Palms of the hands (beginners), radial aspect of index finger (advanced), (Variation: One-handed thrust with the Dynadjust instrument braced against a stable object)

Thrust - Thrust in a straight line of drive (beginner). Thrust with additional lateral combined motion (advanced)

If a significant difference in performance is noticed between your dominant hand and your non-dominant hand, be sure to perform extra sets with your non-dominant hand. With this exercise, as with most, you must be able to perform as well with either hand as the thrusting hand.

Review recommended materials before starting.

Assignment A

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Seated, holding the bottom of the Dynadjust instrument braced against a stable object. Exercise with one hand at a time,



focusing on depth and directional control to produce thrusts in a straight line of drive. Remember to flex your pectoralis muscles during the pre-tension phase.

1. Parameter setting #3: With the right hand, perform two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
 - a. Repeat with left hand and up-load these 12 sets.
2. Repeat same routine with Parameter setting #4, Upload 12 sets at a time.



Assignment B

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Seated, holding the Dynadjust instrument with the bottom end in the palm of one hand (indifferent hand), and thrusting with the palm with the other hand (thrusting hand). Concentrate on holding the instrument steady with the indifferent hand as you thrust. Remember to flex your pectoralis muscles during the pre-tension phase.

1. Parameter setting #3: With the right hand, perform two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
 - a. Repeat with left hand and up-load these 12 sets.
2. Repeat same routine with Parameter setting #4, Upload 12 sets at a time.



Assignment C

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Repeat Assignment B, but hold the instrument by the lower cylinder palm



down, and close to the intersection of the top cylinder. (If your kit includes the Dynadjust Appliance, you can use the tension ring to help stabilize the instrument with the indifferent hand. You will find that this exercise is considerably more difficult than holding the instrument by the ends, but it allows closer juxtaposition of the hands. Working with the instrument in this position will rapidly build strength in your hands.

1. Parameter setting #3: With the right hand, perform two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
 - a. Repeat with left hand and up-load these 12 sets.
2. Repeat same routine with Parameter setting #4, Upload 12 sets at a time.





Assignment D

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Repeat assignment C, but utilize the exercise tubing either under one foot or looped around the head-piece on a treatment table. Use the foam wrist protector to fit the tubing on the wrist of your indifferent hand. If you make an 18" loop using the tubing clamp, and stretch the tubing to approximately double the flaccid length, you will have approximately 10 to 12 pounds of downward tension on your indifferent hand. This will simulate the weight of the head of the average patient, and provide a more realistic challenge for your exercises.



1. Parameter setting #3: With the right hand, perform two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
 - a. Repeat with left hand and up-load these 12 sets.
2. Repeat same routine with Parameter setting #4, Upload 12 sets at a time.

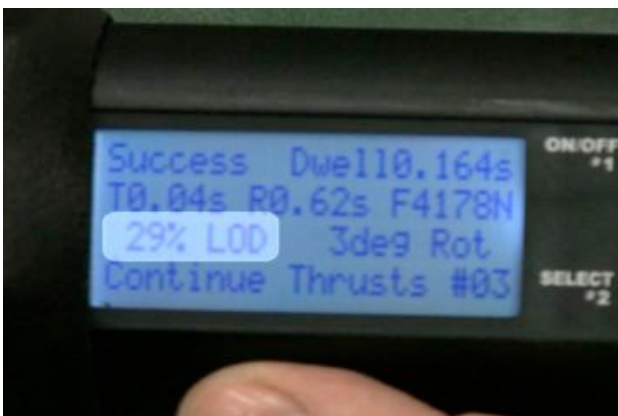
Note: If you find this exercise difficult because of the extra weight on your indifferent hand, use the exercise bar, tubing, and weight bag to exercise your arms and wrists. Hold the bar in your hands with elbows bent to approximately 90 degrees. Alternate between exercising with your palms up and palms down. Slowly roll the tubing onto the rod, then slowly unroll the tubing. Bouncing the bag at the same time will add an extra element of beneficial resistance exercise. Start with the amount of water in the bag that allows you to perform eight repetitions of slowly rolling the tubing up and down. Use your fingers to continuously work the tubing toward the center of the bar as you roll it up. This will strengthen your fingers at the same time. As you gain strength, add more and more water to the bag.





Advanced Assignments

Combined motion moves involve a certain amount of lateral motion that is performed simultaneously with the thrust. Your professor may want to assign certain metrics for the amount of lateral motion that you will incorporate into your thrusting. A good starting point goal metric would be approximately 10 to 20% of lateral motion. If you like, you can start your combined motion exercises with the instrument braced against a stationary object, such as with Assignment A. When you have worked through Assignments A, B, and C, you will have acquired considerable control, and your instructor may wish to have you move up to more difficult parameter settings, such as Parameter setting #6.



Instructor's Suggestions and Notes for Catalog of Assignments Part #2:

Parameter setting #4 has narrower margins for error for the tissue-pull by 50%. If you see that the student is losing the tissue-pull prior to the thrusts, and a preponderance of insufficient depth failures, especially with the heavier springs and the later thrusts, the

problem will likely be worse with parameter setting #4. Corrective prescriptions would include extra work with DREP #2 and #6, ACE #2 and #4, and exercise rod work for strengthening and work-hardening the wrists and fingers (Note that as the student winds the rubber tubing onto the rod, they must continually work the tubing toward the center of the rod. This builds up the wrists, forearms, and fingers). Advise the student to do the corrective work, and repeat this assignment in approximately one week. If the student shows difficulty performing the thrusts in a straight line of drive, more practice is indicated. Ask the student to practice these thrusts with the emphasis on LOD instead of speed. When the student is getting close to 80% successful thrusts, it is time to focus on speed / force modulation. Speed / force modulation exercises are usually performed with the black spring, for training purposes, as it is a fair expectation that if they can achieve good modulation with the heavier springs, they should have little trouble doing even better with the lighter springs. For this particular exercise, with the black spring, and parameter setting #3, the student should be able to consistently produce successful thrusts approaching 2000 N, and should be able to modulate back and forth between 50% and 100% of their maximum on command.

Once the student has mastered these metrics, you may choose to assign this type of exercise using more advanced thrusting techniques, such as various angles (instead of perpendicular). Advanced exercises would incorporate combined motion. Suggested metrics for rotation combined motion thrusts would be approximately 30 degrees, in both directions, and for lateral combined motion thrusts, approximately 10% in forward and back, and side to side. Even more advanced work would involve using the Dynadjust Appliance to provide resistance in the rotation and lateral direction combined motion thrusts. The Tension Ring component of the Dynadjust Appliance can be used with exercise to accommodate nearly any table height.

Dynadjust Catalog of Exercise Assignments #3

Cervicothoracic and First Rib Maneuvers

Play Catalog Video #3

There are a multitude of maneuvers for use in HVLA manipulations of the lower cervical and upper thoracic zygapophyseal joints, and first-rib treatments. Of course, first-rib problems can manifest in various and interesting ways. As a part of working with these exercises, it might be an appropriate time to study the conditions that sometimes are treated with these therapies, and those that should be investigated for your differential diagnosis and contraindications, including Thoracic Outlet Syndrome, Cervical Ribs, Pancoast Tumor, etc. It will be the decision of your instructor, as to *how, when, and if* these topics are addressed as part of your Dynadjust training exercises.

Suggested Parameter settings - As per suggestions from your instructor.

Applicable Videos / User's Guide Materials - [Video #1 #3, DREP #1 #2, ACE #4](#)

Note: With this exercise, you are simulation a “push move” with a superior to inferior, and slightly lateral to medial line of drive. This is a simulation of a first rib or cervicothoracic maneuver, and is nearly the same simulation whether the patient would be in supine or prone position.

Posture - Various postures as shown in the pictures and videos. (or as assigned by your instructor).

Contacts - Thenar eminence, hypothenar eminence and pisiform, lower radial aspect of index finger, (Advanced Variation: One-handed P to A thrusting for the Prone cervicothoracic exercises, as per pictures and videos)

Thrust - Usually a straight line of drive. Advanced versions with added combined motion laterally.

Timing - Standard

Spring Selection - This is a relatively difficult exercise, especially for the combined motion maneuvers described below. As usual, start with the lightest spring (Yellow), and gradually move to the stiffer springs as you skills increase.

Review recommended materials before starting.

Assignment A

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Seated at the head of a table or other suitable posture, such as with just a chair as shown in the pictures and video, with the Dynadjust instrument positioned with the “bottom cap” braced against a table or other surface, and / or stabilized with the “indifferent hand,” and nearly horizontal to the floor. **Strive for a straight line-of-drive with these thrusts.**

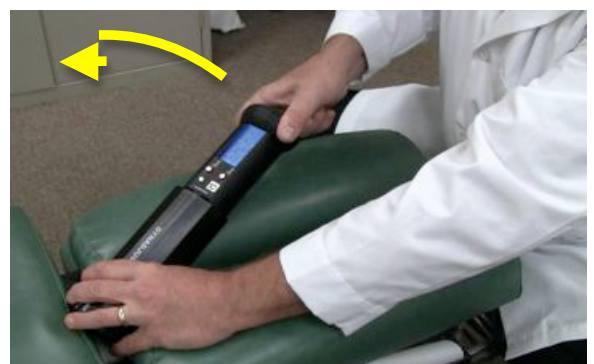
1. Perform two sets with each spring, starting with yellow to red to black. Then two sets with each spring, starting with black to red to yellow. Upload these 12 sets.
2. **Repeat with the other hand**
 - a. Be sure to note which hand was used for which exercises when you up-load to the OrthoNeuro Service Center.) Upload these 12 sets. (A total of 24 sets, 12 sets with each hand).



Assignment B

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Perform the same exercises as in Assignment A, and add a



slight combined motion with the thrust, as if you were inducing slight rotation with the thrust, **as shown in the video for this assignment**. You can vary the amount of combined motion, as your instructor suggests, starting with a goal of approximately 20%

1. Up-load these 24 sets, 12 with each hand.

- a. Be sure to describe your goal for the lateral motion (such as 20%) in the “Notes Window”, as well as which hand was used for the sets, when you up-load your exercises.



Assignment C

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Standing at the side of a table in modified “Fencer Stance”, and slightly bent at the waist, with the instrument positioned vertical on an arm-rest or chair, and the top of the instrument at approximately the top of your femur, perform thrusts using a palm, hypothenar, or pisiform contact (or as suggested by your instructor) Concentrate on a straight line-of-drive, as if the contact was on the transverse process of an upper thoracic segment, and you were inducing a posterior to anterior thrust and inducing slight rotation in the segment.

1. Perform two sets with each spring with one hand, then switch hands and perform two sets with each spring.
 - a. Be sure to record which sets are performed with which hand in the “Notes Window” on the service center.



Assignment D

Perform the following sets using STANDARD TIMING.

Dynadjust Position: Standing at the side of a treatment table, or other suitable surface, position the Dynadjust instrument with the bottom of the instrument slightly medial, and the top at approximately a 30 degree angle laterally, and slightly elevated from the table. Position your body for a superior to inferior thrust with your forearm nearly in line with the instrument. Use your indifferent hand to stabilize the base of the instrument on the table. Produce your thrusts in a superior to inferior vector with a slight lateral to medial angle. (This exercise simulates mostly a first rib, or cervicothoracic maneuver with the patient in prone position.)

1. Perform two sets with each spring with your right hand, then move to the other side, and perform two sets with each spring for a total of 12 sets. Upload these sets.



Assignment D2

Perform the following sets using STANDARD TIMING

Dynadjust Position: **Repeat Assignment D** with the addition of a combined motion with the thrust, as if you were inducing rotation in selected segment along with the thrust. Start with your goal being approximately 20 degrees, and vary the combined motion as per directions from your instructor. Be sure to note your lateral motion goal and the thrusting hand used with the sets, in the “Notes Window” when you upload the exercises to the Service Center.



Advanced Assignments

Perform Assignments B, D2 with the addition of the exercise tubing and foam protector to increase the difficulty of the exercise, especially the combined motion portion of the maneuver. You can determine how much weight you are adding to the exercise, by measuring the length of the loop of exercise tubing with and without the water bag. For instance, you can add a certain amount of water to the bag, and measure how much stretch you need in the tubing to create the desired amount of resistance. A suggested starting point would be approximately 10 lbs of resistance. (For instance, a loop of tubing the is 24” will yield 10 lbs of resistance when stretched to 40 inches. Be sure to include the approximate resistance level of the tubing in the “Notes Window” when uploading these exercises to the Service Center.)



Dynadjust Catalog of Exercise Assignments #4

Side-Posture and Body-Drop

[Play Catalog Video #4](#)

HVLA procedures in which a body-drop is incorporated are common for supine thoracic maneuvers, and in side-posture procedures for lumbar and sacroiliac joint treatments. One of the most difficult problems encountered when attempting body-drop procedures or exercises is the tendency to release the pre-tension or “tissue-pull” prior to the body-drop thrust. When a patient is positioned into side-posture, and the lumbar spine is slowly maneuvered into rotation, the thrust is generally delivered by the doctor into the iliac crest of the patient by applying pressure from the upper body of the doctor. Usually, the doctor will be using his hands to stabilize segments above and below the targeted segment. Or, in the case of a combined motion manipulation, the body drop is accompanied with a thrust from the hand of the doctor, either into the mammillary process of a lumbar segment to induce further rotation, or into the posterior superior iliac spine, in order to gap the sacroiliac joint.



In either case, the “indifferent hand is usually holding the upper shoulder of the patient to maintain rotation in the lumbar spine (long-lever approach).



In the case of the supine thoracic maneuvers, the patient may be lying flat on their back, or positioned on the table in flexion of the thoracic spine



The arms of the patient are usually crossed over the chest, and the thrust is delivered through the elbows of the patient and toward the hand of the doctor, which is positioned on the target segment in such a way as to facilitate the desired motion of that segment.



Note: These exercises have an inherently higher potential for stress to the lower back of the user. It is acceptable, in most cases, to use your arms to support your upper body while practicing body-drop exercises. In real-life treatment, you would be leaning onto the body of the patient to support your own back, and prevent injury. Pay close attention to your form, and level of fatigue with your Dynadjust work on these exercises.



Suggested Parameter settings - As per suggestions from your instructor. Generally, parameter settings with a relatively deeper pre-tension and deeper thrust are recommended.

Applicable Videos / User's Guide Materials - [Video #5](#) [#6](#), [DREP #3](#), [ACE #2](#), [#3](#), [#5](#).

Posture - Various postures as shown in the pictures and videos. (Or as assigned by your instructor).

Contacts - Thenar eminence, hypothenar eminence and pisiform, (Advanced Variation: One-handed thrusting for the side-posture lumbar and sacroiliac maneuvers. Upper body and / or shoulder of the doctor, sometimes reinforced with the arm or hand.

Thrust - Usually a straight line of drive with your body-drop, always avoiding loss of pre-tension prior to the thrust. Advanced versions with added combined motion of body-drop **and** thrust with hand, as in the side-posture maneuvers. These exercises can be performed separately at first, and later performed as a combined motion exercise.

Timing - Standard

Spring Selection - The body-drop exercises are some of the very few simulations in which it can be easier to use the stiffer springs for beginning practice. This allows the doctor to stabilize his body, with help from the stiffer spring. It also requires more control over your own body to thrust against the lighter springs because of the lack of resistance. Your instructor will advise you, with regard to which springs you should utilize with the various assignments.

Assignment A

A simple body-drop in which the Dynadjust instrument is positioned perpendicular to the table. The hands can be used to stabilize the instrument and support your lower back during the thrust. Start with the black spring, and gradually move through the red and yellow springs as you gain control. The idea is to slowly depress the instrument until you achieve the pre-tension, hold pre-tension for 3 to 5 seconds, and then drop down into the instrument in a straight line by rapidly bending just your knees, keeping your lower from moving, and maintaining a comfortable lordotic curve in your lumbar spine. (Number of sets and parameter settings to be prescribed by your instructor.) Using the rubber caps on the instrument will help keep the unit from sliding on the table or your body contact.



Assignment B

Perform the same exercise as in Assignment A, except in this variation, you will bend at the waist to produce the thrust, keeping your knees straight.

Assignment C

Perform the same exercise as in Assignment A, except in this variation, you will bend both your knees and waist to produce the thrusts. Have another individual watch your form as you produce these thrusts. You should strive to have the knees and waist flexion contribute equally to the thrust.

Assignment D

With the base of the instrument positioned on the table, and the up-right instrument at approximately a 20 degree angle away from your body, hold the base of the instrument with one hand, and place the other hand on top of the instrument. Use the superior hand to produce the thrusts into the angled instrument in a straight line-of-drive. Be sure to perform this exercise with each hand as the thrusting hand separately.



Assignment E

Assume the same posture as in Assignment D, with the variation being that you will hold the arms steady, and produce the thrust by bending at the knees only.

Assignment F

Assume the same posture as in Assignment D, with the variation being that you will attempt to produce the thrust with both flexion of the knees and at the waist. Try to produce the thrusts with equal contribution to the thrust with the knees and waist.

Assignment G

Arrange the instrument positioned with the base of the instrument firmly pressed into the region at the top of the femur on the leg furthest from the table, and the instrument almost horizontal to the floor, produce the thrust with the arm positioned so that the forearm is nearly in line with the instrument.



Assignment H

Perform these side postures with the addition of exercise tubing to increase the difficulty level, and to more closely simulate real-life treatment challenges. Your instructor will advise you on variations in postures and tubing tension, etc.



12 Standard Exercises



Exercise #1
Supine Cervical



Exercise #2
Prone Cervical Thumb-Move



Exercise #3
Prone Cervical Cross-Bilateral



Exercise #4
Prone Thoracic



Exercise #5
Supine Thoracic



Exercise #6
Side-Posture Lumbar of Sacroiliac Body Drop



Exercise #7
Two handed Pull Move



Exercise #8
Seated Cervical



Exercise #9
Seated Cervical Rotation, From Front



Exercise #10
Seated Cervical and First Rib



Exercise #11
Pubic Symphysis Adjustment



Exercise #12
Lower Extremity Adjusting

Curriculum Notes and Suggested Goal Metrics for Beginning Dynadjust Exercises

Instructor Notes

Within the [Twelve Standard Dynadjust Exercises](#), the [Ancillary Conditioning Exercises](#) (ACE) and the [Dynadjust Rudimentary Exercise Program](#) (DREP) some exercises and postures are obviously more suited to different parts of the anatomy for training and simulation. Below, we have the exercises categorized, along with suggested “Goal Metrics” for the more common exercises and postures, etc. These Goal Metrics are rough estimates of the speed and force readings that a student may expect to work toward. They do not take into account variables, such as utilization of the accessories, which are sometimes used to enhance the various exercises. This data should be considered nothing more than a “starting point” on which to expand. For beginning exercise purposes here, we will describe the suggested Goal Metrics for cervical and thoracic maneuvers with the **Yellow spring only**, and using some of the more appropriate Dynadjust Parameter Setting for beginning Dynadjust training.

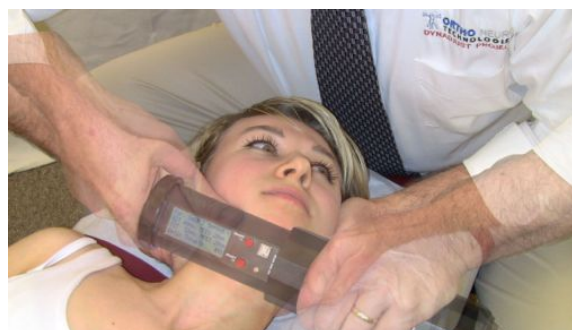
Sample Lab Handout #1 Technique Instruction for Cervical Exercises

Standard Exercise #1

This exercise demonstrates variations on a simple supine cervical “lateral break,” exercise.

- Video Tutorial – Standard Exercise #1
- Notes
 - Yellow Spring

*Suggested Parameter Setting: #4
Suggested Force Newtons: 2400N
Suggested Speed: .05 seconds*



Standard Exercise #2

This exercise demonstrates variations on a simple prone “Thumb Move,” exercise.

- Video Tutorial – Standard Exercise #2
- Notes
 - Yellow Spring

Suggested Parameter Setting: #3
Suggested Force Newtons: 1800N
Suggested Speed: .05 seconds

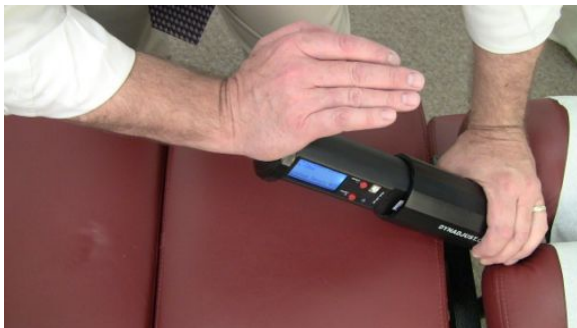


Standard Exercise #3

This exercise demonstrates variations on a simple “Cross-Bilateral” maneuver for the cervical/thoracic region.

- Video Tutorial – Standard Exercise #3
- Notes
 - Yellow Spring

Suggested Parameter Setting: #2
Suggested Force Newtons: 5700N
Suggested Speed: .04 seconds



Sample Lab Handout #2

Technique Instruction for Thoracic Exercises

Standard Exercise #4

This exercise deals with variations on Prone Thoracic Maneuvers.

- Video Tutorial – Standard Exercise #1
- Notes
 - Yellow Spring

Suggested Parameter Setting: #10

Suggested Force Newtons: 5000N

Suggested Speed: .05 seconds



Standard Exercise #5

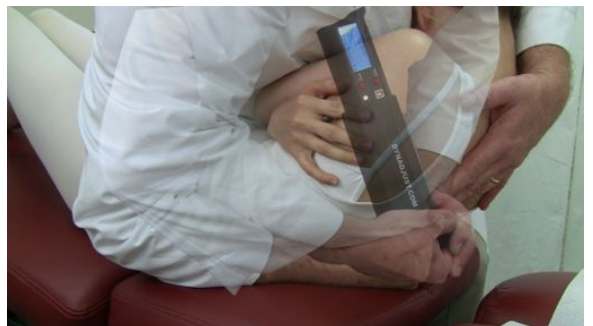
This exercise deals with Supine Thoracic Maneuvers.

- Video Tutorial – Standard Exercise #5
- Notes
 - Yellow Spring
 - *Standard Exercise #5 should be utilized with resistance tubing in place in order to simulate holding the patient into flexion where applicable (see pic*)*

Suggested Parameter Setting: #2

Suggested Force Newtons: 2200N

Suggested Speed: .06 seconds



Sample Lab Handout #3

Technique Instruction for Lumbar & Lumbo-Sacral Exercises

- Notes
 - Red/Black Spring – The heavier springs are needed because the body posture of the practitioner is such that he/she is usually applying some of their own weight to the patients shoulder and knee. This weight transference stabilizes the practitioner and the patient -as found in the shoulder contact with the “indifferent hand,” when performing a “body-drop,” style maneuver. Therefore, it is recommended to start exercises in “body drop” maneuvers with the Black spring and gradually work toward proficiency with the Red and Yellow springs.
 - For Sacroiliac or mammillary process “push” maneuvers, where one side of the Dynadjust instrument is held against the body of the practitioner, the opposite is true. Beginning exercises for “lumbo-sacral push” maneuvers should utilize the Yellow spring first, and gradually work towards proficiency with the Red and Black springs.
 - Dynadjust Parameter Settings for side-posture lumbar and sacral maneuvers should usually be those with the most pre-manipulative tension (Tissue Pull) and deepest depth of thrust, such as Parameter Settings #10, #11, and #12.

Standard Exercise #6

This exercise demonstrates variations on Side-Posture Lumbar or Sacroiliac Body Drop.

- Video Tutorial – Standard Exercise #6
- Notes
 - Red/Black Spring

Suggested Parameter Setting: #10, 11, 12

Suggested Force Newtons:

Suggested Speed:



Standard Exercise #7

This exercise demonstrates variations on the “Two Handed Pull Move”.

- Video Tutorial – Standard Exercise #7
- Notes
 - Red/Black Spring

Suggested Parameter Setting: #10, 11, 12

Suggested Force Newtons:

Suggested Speed:



Sample Lab Handout #4

Technique Instruction for “Specialty/Advanced Procedures”

- Video Tutorials
 1. Standard Exercise #8
 2. Standard Exercise #9
 3. Standard Exercise #10
 4. Standard Exercise #11
 5. Standard Exercise #12
- Notes
 - Study the Dynadjust User’s Manual PDF document and the included Twelve Standard Dynadjust Training Videos often. Consider which exercises described in the Twelve Videos, and those listed under ACE and DREP in the Dynadjust User’s Manual, are appropriate for your present training regimen and assignments.
 - Remember to practice each exercise with both hands, where

Set	Date	Successful	Goal	Exercise Name	Standard #2	Standard Hand	Notes
18	2011-01-18	16.7%					
17	2011-01-18	58.3%					
16	2011-01-18	75.0%					
15	2011-01-18	41.7%					
14	2011-01-18	50.0%					
13	2011-01-18	66.7%					
12	2011-01-18	83.3%					
11	2011-01-18	75.0%					
10	2011-01-18	83.3%					
9	2011-01-18	66.7%					
8	2011-01-18	66.7%					
7	2011-01-18	91.7%					
6	2011-01-18	66.7%					
5	2011-01-18	91.7%					
4	2011-01-18	83.3%					
3	2011-01-18	50.0%					
2	2010-12-20	83.3%					

Goal	Exercise Name	Standard #2	Standard Hand
18	Standard #2		None
Notes			
Update Result Set			

Quick to Thrust: 40mm	MFE: 15mm	Spring Selection: Yellow
Depth of Thrust: 25mm	MFE: 20mm	Timing: Standard

Successful Thrusts: 2	16.7%	#	MFE	T	RD	LAD	AVP	F
		1	8	13	170	264	7	4 280
Excessive Depth: 10	83.3%	2	0	26	218	273	10	3 213
Loss of Post-Tension: 0	0%	3	0	23	196	274	5	1 256
		4	0	20	177	244	4	0 323
		5	0	28	212	233	3	1 225
Avg. Thrust Time: 193.3ms		6	0	22	175	262	3	2 331
Avg. Reaction Time: 273.3ms		7	0	22	169	263	8	0 305
Avg. Deviation: 6.4%		8	0	25	177	300	11	5 323
Avg. Jaw Rotation: 2.2°		9	0	22	176	300	8	3 307
Avg. Force: 280.1N		10	0	23	225	282	10	7 200
		11	0	22	204	272	5	0 243

applicable, and to note whether the exercise was performed with your dominant hand, or your non-dominant hand in your ONT Service Center “notes” windows.

- Every thrust counts! Proceed with your exercises as if each thrust was being delivered to a live patient. Avoid the tendency to rush through the six “Warm-Up” thrusts at the beginning of each set.
- Experiment with your exercises by using Dynadjust Instrument Parameter Settings that may not be perfectly suited to any particular patient positioning. (*Editors Note- Ideally, a “Master” would be able to perform any thrust with any Parameter Setting, and in any posture or resistance level)

Sample Lab Handout #5

“Round Robin” Home Study Program

Study in groups when possible.

This way, students can help each other maintain the proper posture and Dynadjust Instrument positioning for their exercises. Experiment with “Round-Robin” group exercises, in which a group of students each set their Dynadjust Instruments to a different Parameter Setting and spring resistance level. Next, select a particular posture and positioning to perform together.



Perform at least one “Set” with each Dynadjust Instrument, switching instruments with the next person after each set is complete. This is a very effective confidence building exercise!

It is of paramount importance to remember that your first goal, with every Dynadjust exercise, is to find the “groove” of the Parameter Setting. Speed and force are important, but the ability to MODULATE your speed and force is far more important in your training regimens.

On any particular exercise, in any posture or positioning, start by slowly finding the right depth of the “tissue-pull”, and the depth of the thrust. Once you have practiced enough to be able to keep the majority of your thrusts within the chosen Parameter Setting, you should begin to gradually bring up the speed and force of your thrusts, while staying within the chosen Parameter Setting. Each thrust brings you closer to your goal of being able to modulate your thrusts with any given setting or posture.

- Notes
 - A “Set” of Dynadjust exercises (18 thrusts) takes approximately three minutes to perform.
 - A “Deck” of Dynadjust exercises (16 Sets of 18 thrusts) fills the memory of the Dynadjust Instrument and takes approximately 45 minutes to perform.
 - A complete “Deck” of exercises is 288 thrusts.
 - These estimates include the time needed for the student to properly perform the assignment, and to up-load the data collected to the OrthoNeuro Service Center.
 - It is suggested that assigned “homework” Dynadjust exercises, with the posture of the body of the student and the positioning and Parameter Settings of the Dynadjust Instrument, should be conducted in “Decks”.
 - The student does not need to perform the entire assignment in a single session - the Dynadjust Instrument will store the “sets” performed until they are up-loaded or erased.
 - For the sake of compliance, any combination of “Sets” or “Decks” can be up-loaded to the OrthoNeuro Service Center only once.

Research and Supporting Links

This list of links to scientific journal abstracts is a small but significant sampling of “Dynadjust Specific” research articles, and some of the most “on point” articles, demonstrating the transferability of skills developed on machines and apparatus, to actual clinical application on human patients.

This is an exciting and presently emerging science, and we at OrthoNeuro Technologies are dedicated to advancing this science, and to continuing to support the research efforts at the various institutions, and in the field as well. Be sure to monitor this page regularly, as we continue to work together with you, your peers, and the top bio-mechanical research scientists, on a global scale.

It is an important part of our mission to keep you informed of the incredible advances in bio-mechanical sciences, and their educational and clinical applications.

Published Research

1. Quantitative feedback versus standard training for cervical and thoracic manipulation

Journal of Manipulative and Physiological Therapeutics
Volume 26, Issue 3 , Pages 131-138, March 2003

2. Developing skilled performance of lumbar spine manipulation

Journal of Manipulative and Physiological Therapeutics
Volume 25, Issue 6 , Pages 353-361, July 2002

3. Biomechanics: Review of approaches for performance training in spinal manipulation

"How we perform spinal manipulation makes a difference (See Cleland et al 2009) to the right group of patients. Feedback is a key component that hones the central nervous system, increasing its adaptability and the functionality necessary to apply treatment safely to patients with pain involving complex pathology." John J.

Triano, DC, PhD

Supporting Research

1. Does Treatment Force Matter? A Look at Manipulation Skill in Patient Contexts

Referring to the latest research, Dr. Triano will discuss the benefits of rehearsed practice and quantifiably measuring the complex physical forces involved in the chiropractic adjustment, as well as strategies for practitioners to assess their personal skill in manual technique. He will also explore the benefits and risks of the inaccurate, excessive or moderate application of force in manipulation, to both the patient and the practitioner's practice.

Glossary

Terms

Plyometrics - Plyometrics, also known as “plyos” is a type exercise designed to produce fast and powerful movements. It is generally used by athletes to improve performance in sports, especially those that involve speed, quickness and power.

HVLA – High Velocity Low Amplitude

Links

[**Quantitative feedback versus standard training for cervical and thoracic manipulation**](#)

[**Developing skilled performance of lumbar spine manipulation**](#)

[**Dr. Triano Webinar “Does treatment force matter? A look at manipulation skill in patient contexts”**](#)

[**Biomechanics: Review of approaches for performance training in spinal manipulation**](#)

Videos

[**ACE**](#)

[**Appliance**](#)

[**Catalog #1**](#)

[**Catalog #2**](#)

[**Catalog #3**](#)

[**Catalog #4**](#)

[**Combined Motion Superimpositions**](#)

[**D.R.E.P. #1**](#)

[**D.R.E.P. #2**](#)

[**D.R.E.P. #3**](#)

[**D.R.E.P. #4**](#)

[**D.R.E.P. #5**](#)

[**D.R.E.P. #6**](#)

Dr. Triano Presenting @ TCC
Dynadjust Instrument & Kit
Dynadjust Instrument Tutorial
Dynadjust Users Tips
History & Mission
Math Calculations
P.A.T. Program
Plyometrics
Student Skill Evaluation Scenario & Review of ONT Service Center
Spring Change
Twelve Standard Exercises
 Exercise #1
 Exercise #2
 Exercise #3
 Exercise #4
 Exercise #5
 Exercise #6
 Exercise #7
 Exercise #8
 Exercise #9
 Exercise #10
 Exercise #11
 Exercise #12
Water Bag Exercises